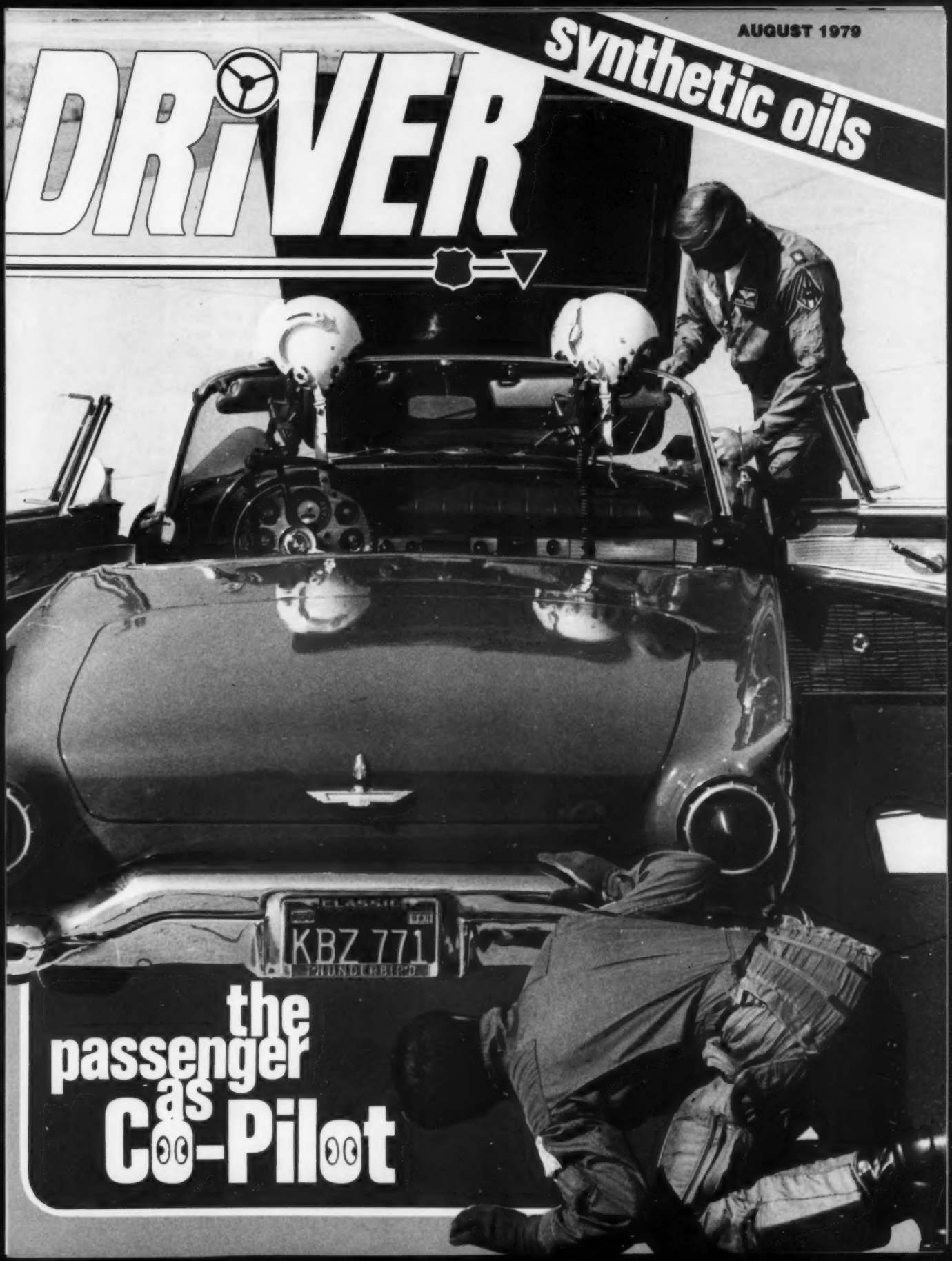
AUGUST 1979
DRIVER
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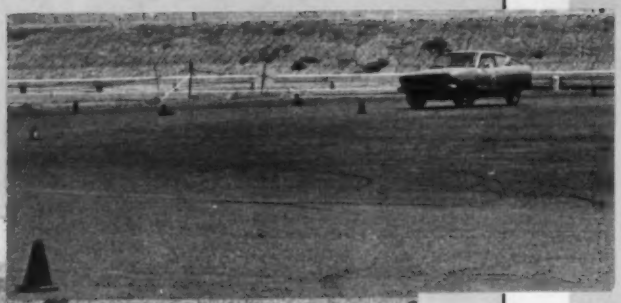

3-D

"Don' Drink an' Drine" . . . uh,
"Don' Drike and' Dive" . . . I mean . . .

Can you safely drink and drive? There are about 10,000 people in Southern California who no longer think so.

Picture this: You've been busted for driving under the influence of alcohol and the judge gives you the choice of getting a DUI conviction or taking a special driving course in exchange for a less serious conviction, say reckless driving. Which do you choose? Not much question, really.

Then picture this: During the three-day course, you are given the opportunity to drink yourself to the point of legal intoxication and then you are allowed to drive. Does this sound like something that is legally sanctioned?

Well, it is. Certain courts in Orange County, California are sending some of their DUI drivers to something called the Academy of Defensive Driving for three days of intensive training, lectures and driving instruction. The idea is that people who go through the course will be less likely to reappear in the courts on another DUI bust. And it works.

Dr. Frederick McGuire of the University of California at Irvine performed a study of graduates of the Academy of Defensive Driving in 1977. He compared 1000 graduates with 1000 drinking drivers who were simply convicted and fined. He found that in the first year after the conviction, the court-processed drivers were 78 percent more likely than the graduates to have another alcohol-related violation, 34 percent more likely to have an accident, 23 percent more likely to have a moving violation, and 40 percent more likely to have their licenses suspended.

With these figures in mind, we're going to look at the Academy and its programs.

Police, CHIPS and spies: When the Academy of Defensive Driving (AODD) opened in 1973, drunk drivers were not on their mind at all. The police chief in Costa Mesa, California asked Larry Vaughan, owner of the Orange County International Raceway, to develop an advanced driver training course for his policemen because of a number of accidents that had occurred in car chases. Vaughan decided this would make good use of his raceway, which was being used for racing only about three times a week.

The course that he developed included special car handling techniques and simulated chase situations. As it

continued

(counterclockwise from top left) **Instructor Ken Vanderlip,** a former race driver, shows us the proper way to handle the skid pan. He controls the direction of the car with the accelerator as much as with the steering wheel.

DRIVER

THE
TRAFFIC SAFETY MAGAZINE
FOR THE MILITARY DRIVER

DEPARTMENT OF THE AIR FORCE
HQ AIR FORCE INSPECTION AND SAFETY CENTER
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VOLUME 13 NUMBER 3

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THE EDITOR SPEAKS DOUBLE CLUTCH

EMI CAN STOP YOU

Autoweek, the well-known journal that covers the entire automotive scene from new-car developments to competition driving, recently reported on still another worry for the harried automakers. It's called electromagnetic interference (EMI) and it affects onboard automotive electronics.

Because of EMI, buses can't get across the Dearborn Street bridge in Chicago. In New England, fuel-injected Volkswagens quit as they pass a particular billboard. Truck drivers coming down I-71 into Cincinnati report dramatic experiences with anti-skid braking. EMI is a problem growing more acute and more widespread as on-board electronics are used for a rapidly lengthening list of important jobs. It is such a serious problem that most of the cost of upcoming electronic devices will be in hardening them to fend off EMI. Hardening is a term used to describe the process of filtering out interference.

One of the most troublesome spots in the electromagnetic spectrum is the FM transmission band. If a manufacturer does not do a good job of shielding the electronics and harnesses, electronic control systems can die completely in the presence of FM radiation.

According to *Autoweek* it was FM that reflected off the metal deck on the Dearborn Street bridge and stopped the buses. It bounced off the billboard to strangle the electronic control on the VWs in New England and gave the truckers fits around Cincinnati.

As carmakers are pushed toward utilizing plastics, the EMI problem increases. Today a lot of shielding is provided by a car's sheet metal. There is heavy concern as to what effect the reduction in shielding caused by plastics

continued on page 17

Bud Mahurin, executive vice president of the Academy of Defensive Driving, said a branch of AODD operates in San Diego, and another will open soon in San Francisco.

expanded, not only police but highway patrolmen, CIA and FBI agents, even secret servicemen and Treasury drug enforcement agents attended.

Soon after, the courts in Orange County asked Vaughan to develop a separate program to train drivers who had been arrested for drinking and driving. The aim was to show the drivers that they cannot safely drink and drive – despite what they might think – and prevent their reappearance in court on the same charge. Later, a separate course was opened for juveniles with DUI citations or open container offenses.

Six thousand law enforcement people have gone through the police class, around 10,000 drunk drivers have attended the DUI class and 2500 juveniles have attended their particular course. With firemen and emergency vehicle drivers, the total is over 20,000 who have gone through one program or another at AODD.

Olympic drinking: We were escorted around the AODD by its executive vice president and chief spokesman, Walker M. ("Bud") Mahurin.

Mahurin said the courts send him people who were moderately drunk when they were stopped, not those the courts feel are having chronic problems with alcohol, those Mahurin calls the "olympic-style drinkers." "We try to get those at .15 to .2 Blood Alcohol Level, because those are the ones who've probably been having too much to drink right along, but just got caught this time. But they're not the chronic alcoholics who'll get caught again and again."

The students are people of all ages, occupations and social backgrounds. There have been bank presidents and members of the Armed Forces, the highest-ranking of whom was a three-star general (and no, we won't say which service).

Mahurin stresses that they do not reject anyone who cannot pay for the course. If the courts recommend a drunk driver attend the AODD and he is poor, he is allowed to attend at no charge. Part of the fee paid by the students goes into the general fund of Orange County.

Mahurin also pointed out the course is not aiming for abstinence from its students. "We're after the social drinker. He'll continue to drink, but he'll do it with restraint after the course," Mahurin said.

"3-D": The courts in Orange County and the AODD hope to teach the students that they cannot safely drink and drive. In fact, the class is called "Don't Drink and Drive" or "3-D." Each class runs eight hours a day for three days. These are intensive sessions of lectures, films, group discussions, hands-on driving practice through obstacles and hazards, and of course the actual drinking-and-driving experiences that are built into the course.

Each day there are lectures by the staff of the AODD, which includes people from many different backgrounds – driver education, psychology, police work, and at least one former race driver. Other lecturers include representatives from the Psychology Department of the University of California at Irvine, the Orange County Sheriff's Crime Laboratory, and the California Highway Patrol.

The AODD runs two 3-D classes a week for three days each, with an overlap on Wednesdays. The drinking-and-driving part is on the second day of each class (Tuesdays and Thursdays), and the students examine the performance of the volunteers on the third day.

We visited on a Thursday. A police class was operating at the raceway and an especially large 3-D class – 34 people – was being taught at loaned facilities at the Orange County Fairgrounds. Both locations have classrooms and driving areas, and the raceway has a "skid pan."

Getting oiled: The skid pan is a blacktopped area on which the staff splashes a special water-soluble oil. The pan is designed to give the driver the feeling of handling on ice or snow. The idea is to go into a controlled skid and maneuver around cones.

The students were driving the academy's small Datsuns and having a ball. The little cars – and the drivers – were splattered with oil, and the instructors kept throwing more oil on the skid pan to maintain the slickness. The students are encouraged to have fun with the skid pan, and they skidded around, whooping and shouting.

"We *want* them to spin out," said Mahurin. "Then they have fun and they *automatically* learn how to control a car in a skid."

I was given the chance to try the skid pan test, and as an old hand with snow and ice-covered roads I thought I'd do pretty well. I know how to handle a car to get out of a slide by steering the wheels into the skid. But the skid pan was a little trickier than I expected. It's one thing to get *out* of a skid; it's quite another to deliberately *make* the car

continued

continued

The Academy considers the skid pan an important part of the 3-D class. "The first thing they teach you in a plane is how to get out of a stall and a spin," said Mahurin. "But not in driver training." He finds most high school driver education "deplorable."

slide and then try to maintain the skid and control the car at the same time. You have to understeer and control the direction of the car as much with the throttle as with the wheel.

It's true that if you steer into the skid you will pull out, but if you don't handle the throttle correctly you'll slide the tail of the car into the opposite direction. I fishtailed around the skid pan and spun out once before I started to get the feel of it.

Red light! Other layouts include driving courses with serpentine "S's," simulated parallel parking situations and other tasks, one of which is the traffic hazard simulator. The latter is designed to test the student's speed of response. There are three traffic lights suspended over lanes set off by cones. About 50 feet in front of the lights is a cable that activates the lights when a car drives over it. An instructor programs the lights so that they are different each time, sometimes three red, sometimes two red and a green or two amber and a green, etc.

The object is for the driver to steer – without braking – toward the safest lane, or to stop (when all are red) before he passes the lights.

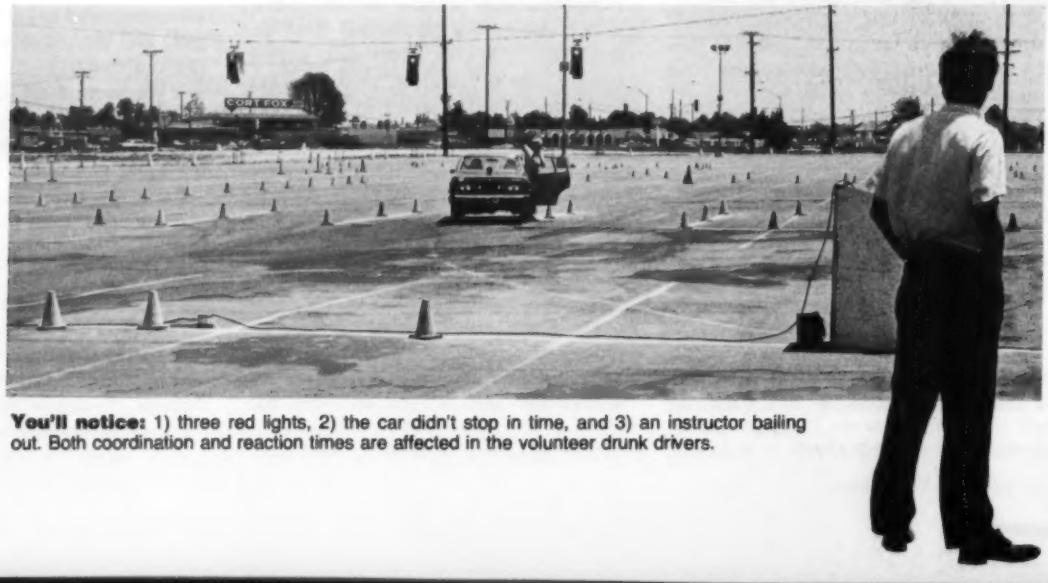
This part of the driving course offers the most challenge because the lights are different each time, and the car's speed will affect how well the driver will perform. It is also the best indicator of how the students could expect to perform in real traffic.

In their practice runs through all the driving courses, they are instructed to drive slowly as they learn each course and then work on more speed. After a day and a half of driving, each student will have reached his or her best performance level.

Speed is especially important in the traffic hazard simulator because the driver learns how fast he personally can go and still make the correct decision. Mahurin said, "When he's driving toward a real intersection, he knows if his safe speed is 25 and he's going 40 he's not going to make it."

I also tried the traffic hazard simulator. I didn't fall into the trap of thinking it would be easy, but I still underestimated it. (I have to plead inexperience and lack of practice!) I took the course too fast each trial and had no time to change easily to the proper lane. And I braked automatically each time. These courses are difficult enough for a sober person, let alone one who's had a few.

Set 'em up again! After those two driving experiences, I was ready for the "main event" – the volunteer drinking drivers. In each class, two people volunteer to drink until their Blood Alcohol Level (BAL) reaches .1 – the legal level of intoxication in this jurisdiction. Then they go out to the driving course area and attempt to do maneuvers they have been practicing (sober) for a day and a half. "Attempt" is the only word for it. But more on that later.



You'll notice: 1) three red lights, 2) the car didn't stop in time, and 3) an instructor bailing out. Both coordination and reaction times are affected in the volunteer drunk drivers.

The Academy staff makes the drinking situation as realistic as possible. The small bar room is furnished with bar and barstools, pictures on the walls, a radio, and oh yes, a *bartender*. One of the instructors plays bartender and mixes the drinks precisely for each volunteer, so that they will know exactly how much alcohol each has consumed.

And they are video-taped. The instructors interview the volunteers on camera, first when they are sober, then at about BAL .05 and finally at around BAL .1.

They are also video-taped when they drive the courses set up for them. The purpose of the video-tapes is to show the volunteers (and the other students) that their behavior is indeed altered by alcohol, and to prove to them that their performance behind the wheel suffers.

These video-tapes are played for the entire class on the third day and then the results are discussed by everyone.

The two volunteers for this class were a man and a woman. When we first saw them, he had had four drinks and she had had three. They both appeared fairly normal, although the man said he was at his limit for maintaining control. The woman said she thought she'd be impaired at that point.

As we got a cup of coffee, the photographer said to them, "Sorry we can't offer you any."

"Oh, that wouldn't do anything anyway," said the woman. "The only thing that'll sober us up is time." And they both began to explain how fast the human liver can oxidize alcohol. Obviously, we figured, some learning was taking place.

After we returned from lunch, we visited the little bar again. The woman was much more relaxed and she was laughing. The man seemed more "mellow," but he moved with slightly exaggerated care. They were both pretty

continued

On the traffic hazard simulator, the car approaches a trip-wire that activates the three traffic signals.

One of the volunteers swerves toward the lane with the green light—but not very adeptly.

Chief Instructor Chris Dunn speaks to part of the 3-D class in the informal classroom. To avoid monotony, the class is broken up at times so that some drive while others listen to lectures.

The volunteers drink in a relaxed, bar-like atmosphere. The "bartender," Ray Ocasio, measures the drinks precisely, so they will know exactly how much alcohol is consumed.

"Give me my Batman outfit!"

high, although they had had food with their alcohol. When they were tested on the breathalyzer, he measured .14 and she came out at .13.

"I gonna go to the car now." They were led out to a van and taxied to the area of the traffic hazard simulator. On all the drives, an instructor sat in the passenger seat with a "kill" switch, which could be used to stop the car if the driver lost control. On the drives through the traffic hazard simulator, another instructor sat in the back seat with a portable video camera to record the driver's performance and reactions.

As the rest of the class watched, the two volunteers each made five attempts at the traffic hazard simulator. Like I said, "attempt." As each try went wrong, they began to get a little wild, driving faster back to the starting point to go again.

As one of them laid rubber stopping after going through three red lights, the rear door opened and the instructor got out with her video camera. She gazed skyward and crossed herself before getting back in the car. The class laughed, but they were getting the message – these were nice people and probably good drivers when sober, but give them a few drinks and you'd better run for cover.

The other task set up for them was a decreasing spiral. The drivers had to drive in towards the center and then *back* out. Although this maneuver has no counterpart in real-life driving, it tests the coordination and concentration of the driver. Mahurin said the drivers quite often make a mistake and get disoriented. This is what happened to the woman. She got near the exit point after knocking down about ten cones and then lost her way and went back through part of the spiral, finally knocking down 25 cones. The man, moving much slower, managed to get out without knocking down even one.

Everyone was surprised, including the driver.

After the drinking-and-driving exercise, the volunteers are finished for that day, and they are driven home by the staff. But first, they are interviewed one last time on video-tape.

Smile! You're on 3-D Camera! We were unable to come back the next day to see the results, but Mahurin filled us in. "Invariably," he said, "they say they could drive home safely. And the next day, they see the tape. Their first reaction is always, 'I didn't know I looked like that when I'm drunk.' And when they see the video-tape of their driving they say, 'I didn't know I was driving that badly.'

"What we're after with this class is a change in attitude," Mahurin said.

I could see the beginnings of such a change. One of the students said he would have driven home after a few drinks before taking the class; now, he wouldn't.

Another student gave an outspoken opinion of regular court procedures: "All they want is your money. They're not giving you a chance to realize that if you're drunk you cannot drive. They're just saying, 'Hey, give me your money. Go out, do it again; we'll take your license away. But we want your money.'

"I've learned something here," he continued, "because yesterday I went through some courses that I couldn't do *sober*, much less drunk. It made me aware that I don't want to drive when I'm drunk, because I know if I can't do it sober I know damn well I can't do it drunk."

With a few changes like that, a 3-D-like program might just pay for itself.

COPS AND RABBITS

We didn't get a chance to watch any of the police class, but we might go back later to examine it, because the 3-D course is basically a modification of the police class.

The entire police course is built around "code three," the chase. The police are taught how to drive more efficiently and safely so that they can catch suspects without crashing.

The highlight of this course is the "rabbit chase." One of the instructors serves as a suspect and the policemen must catch him in five laps of the raceway track.

The "rabbit car" is a sedan on which a roll bar has been added and the doors have been welded shut. The police car is an actual police Dodge Polara. An instructor rides with the policeman.

Mahurin said, "The first thing that happens is the minute the cop turns on that red light and siren he forgets everything we've told him. He's going to show the rest of the class. He burns rubber, loses traction. The instructor lets him do that for about a lap and then says, 'Wait a minute; you've forgotten everything. Calm down, slow down. Remember what we told you

One of the volunteers blows into the breathalyzer to register her blood alcohol level. Once they reach BAL .1, the volunteers are taken to the driving area for tests.

The breathalyzer gives a read-out on a graph to tell the instructors how intoxicated their volunteers are.

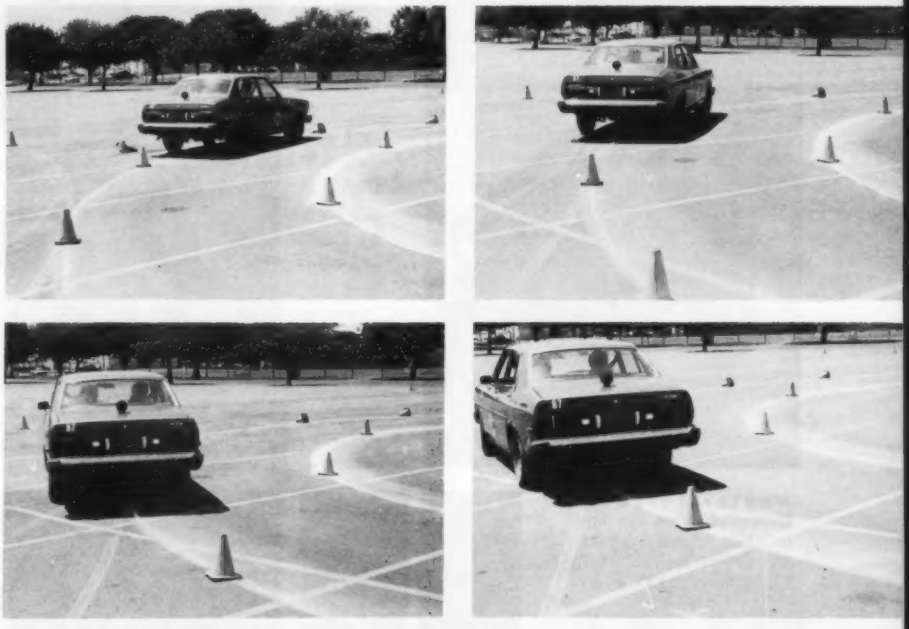
about hand position and speed and you'll begin to catch up to the rabbit car.' So then that happens. The student realizes what we've been telling him for three days really works. If we get a student who's really hot, the instructor will pull off into the shoulder, do a 180 and come back the other way. They can make any student look crazy if they want to. The message is there and the rest of the class sees it. But invariably the first student will screw up in code three, the rest of the class laughs and the next student gets in the car and does the same thing. It's a psychological thing when they turn those red lights and siren on.

"We try to get them to use their brains instead of their feet, use their radio and set up roadblocks rather than trying to cut them off at the pass like they do on 'Streets of San Francisco.' "

It seems to work. I talked to a local policeman who had taken the defensive driving course some time ago, and he said the techniques had saved him at least one accident. He was speeding down a highway on a call when a driver entered the highway from an access road without looking first. "I remembered what they'd taught me and I had my hands at "nine" and "three' and I whipped around her by just turning the wheel, without moving my hands on it. I didn't lose control and I didn't hit her." The officer said he came back later and saw the tire marks where he had screeched by the driver.

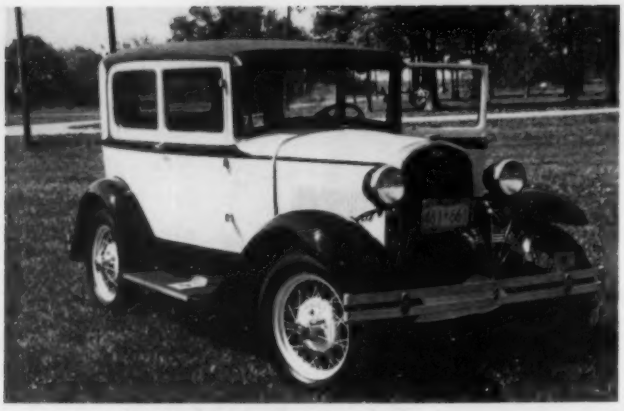
We hope all the graduates of the course have learned so well.

Jeri Rood



On the decreasing spiral test, the woman volunteer started out not-too-badly, but then became disoriented and knocked over half the cones.

The aftermath.



1931 Ford Model A Standard Tudor Sedan.

What has spoked wheels, a massive four-cylinder engine, running boards, and hours of tender loving care? No, not your VW. It's Master Sergeant Edmund R. Cousins' 1931 Model A Ford Standard Tudor Sedan.

Sergeant Cousins works in the Fixed Communications division at Headquarters Tactical Communications Area (TACCA) where he is responsible for the management of antenna and cable maintenance.

He has owned his Model A for about a year. In that time he has registered 5,000 miles on the odometer. He drives

Master Sergeant Cousins adds the final touches to a carburetor adjustment before taking his Model A out for a spin.

Master Sergeant Edmund R. Cousins pictured with his 1931 Model A Standard Tudor Sedan. This is his normal mode of transportation to and from work at HQ TACCA. In the past year he has driven the car over 5,000 miles.

"A" for

by Capt TOM PAHLER
Langley AFB, VA

the car to work daily, so it gets no special privileges in that area. What it does get is admiring glances from passers-by.

Cousins acquired the car in July of 1978. It was advertised in the Langley Federal Credit Union Bulletin. The seller is an employee at NASA and the one who introduced Cousins to Mr. Bob Williams, past president of the Colonial Virginia Chapter of the Model A Ford Club of America. Williams invited Cousins to the next club outing, and he was so impressed by its members that he soon joined.

"Bob Williams helped with a lot of the work that I wanted to do to get the car ready for summer touring," said Cousins. In August 1978 the club toured Virginia Beach, September found them picnicking and touring in West Point, Virginia, and in October they visited a fellow collector, Mr. Hugh Hawthorne, in Richmond, Virginia.

Hawthorne is an avid collector of antique cars. He has 60 cars at his home in various stages of restoration. In addition, he collects memorabilia and Indian artifacts. One of his prized items is a Richard Petty racecar. "It was like visiting someone's personal museum," says Cousins.

The fall and winter months are generally reserved for restoration work by club members, but they did make a showing for the Hampton Christmas Parade and the Yorktown Homecoming Parade.

Asked about unique occurrences as a Model A owner, Cousins comments, "The most embarrassing thing that happened with the car . . . I was having ignition problems which caused the battery to discharge. I was supposed to have the Homecoming Queen Candidates from Yorktown High School ride in my car, but when the parade was beginning, the girls had to push the car to start it!"

The '31 Model A is mostly original, and Sergeant Cousins eventually hopes to have a 100 per cent complete restoration. "The biggest project will be the body and chassis, since the body must be separated from the frame and taken completely apart," said Cousins. This is a difficult task for a service member who is subject to PCS orders. In fact, Sergeant Cousins has orders for the European Communications Area and will be leaving TACCA in September.

Are there any hazards involved in driving an antique car like a '31 Model A? Yes, there are. The two that Cousins mentions are mechanical brakes and lack of turn signals and tail lights. Most modern day drivers don't even think about mechanical brakes because they are used to their hydraulic systems, which react very quickly. The lack of turn signals gets to be a problem because people aren't used to looking for hand signals for stopping or turning. Some younger drivers have never seen a hand signal.

"The car is very simple and practical," says Cousins. The fuel system is gravity fed. "Anyone trying to steal my car would run out of gas quickly if he didn't know where to turn it on. On the other hand, if the driver forgets to turn it off, he floods the carburetor and can't start it again."

The gas tank is right in front of the dashboard. The gas gauge consists of a cork on a wire that extends into the gas tank and floats to indicate the fuel level on a crude meter. The front windshield adjusts outward on two swivels for ventilation. This augments the roll-down side windows.

Throttle and spark advance are both on the steering column. The light switch for the headlights is in the center of the steering wheel.

The manual spark advance of the Model A has been replaced on newer cars by vacuum and centrifugal advances for ignition. There is a fuel/carburetor adjustment on the inside of the car, set rich for starting, and leaned as the engine warms. It is similar to the set up on small lightweight aircraft.

Cousins drives the car to work at HQ TACCA most of the time. The car, capable of 55 mph speeds on the highways, has no trouble keeping up with traffic when the Colonial Virginia Chapter of the Model A Ford Club of America goes on tour. The only real problem is those mechanical brakes.

Not too many folks have Model A's. Sergeant Cousins says that he gets as many admiring glances as sports car drivers, although he admits that most of them are from the older set. Owning a classic is a hobby that one gets devoted to. Cousins strongly recommends joining a good club if you're interested in restorations. On weekends when he isn't working on his own car, he is likely to be helping a fellow club member restore another Model A. "The camaraderie is fantastic," he says, "and the club members are a fantastic source of information and mechanical skill."

If you happen to see Sergeant Cousins driving around the Langley area, wave and say hello. It shouldn't be hard to recognize him. He's the fellow sitting high in the saddle of his '31 Ford Tudor Sedan.

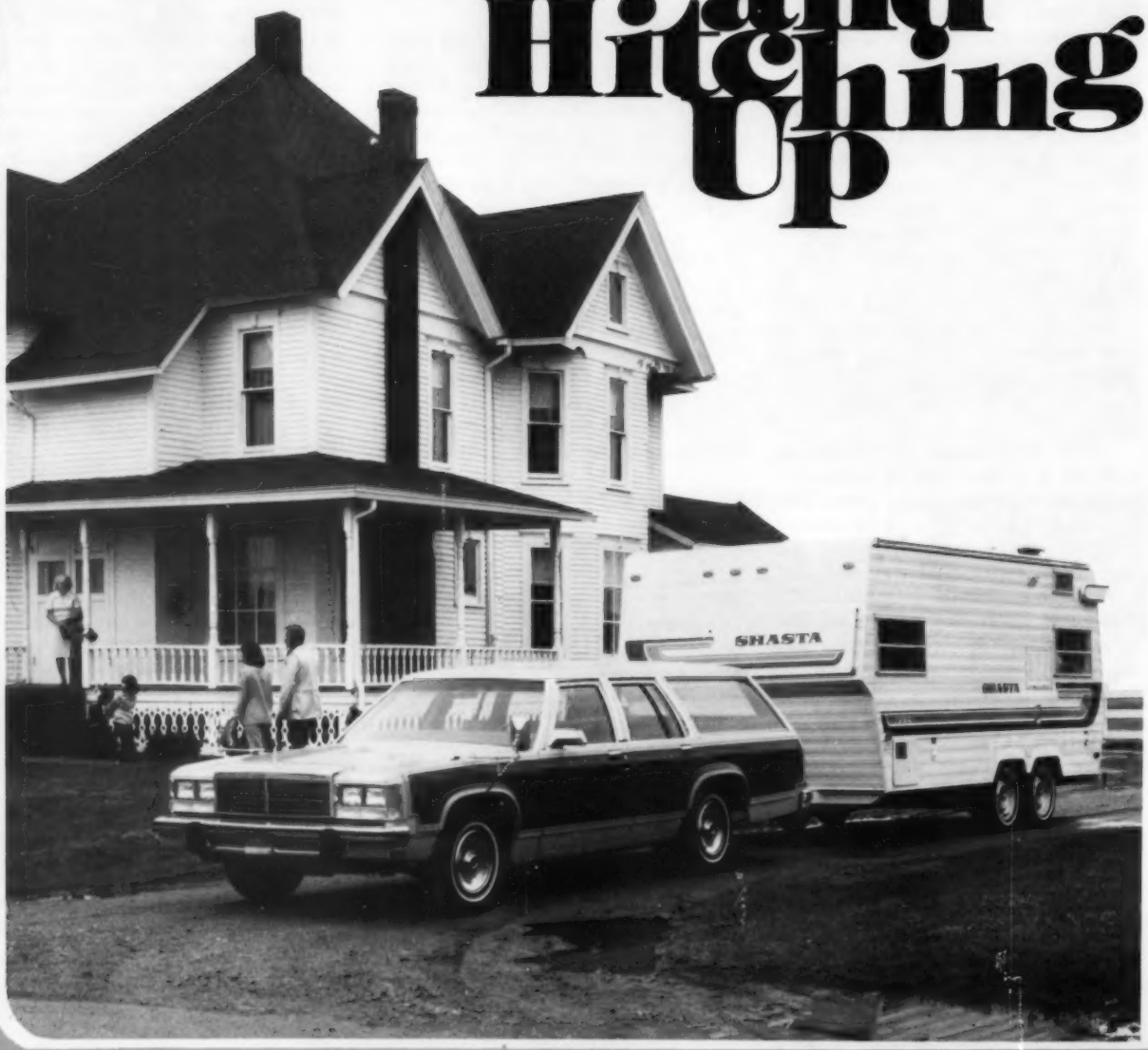
This '31 Model A Standard Tudor Sedan is a classic beauty, but modern drivers should be aware that it has mechanical brakes that cannot react as fast as modern hydraulic braking systems. As you can see, there are no tail lights or turn signals on this classic. The '31 Model A was manufactured long before such safety devices were required.

This beauty could not be complete without the classic headlights and "a-ooh-ga" horn.

effort

The price of gasoline and the possibility of spot shortages may discourage us from hauling a trailer crosscountry the next few months, but a lot of people will still be towing trailers shorter distances to a lake or river or other pleasant places for some well-earned relaxation. One of the main considerations for easy towing – whether 200 miles or 2000 – is proper loading.

Trailer Weight and Hitching Up



Ford Motor Company advises us to make sure the load is evenly distributed and that we never exceed the manufacturer's rated towing capability of the towing vehicle.

Rated towing capability is the result of exhaustive engineering laboratory, proving ground, and highway testing plus experience. It is the maximum recommended capability limit. And don't forget that your trailer weight must be properly distributed.

Two things should be kept in mind when loading the trailer.

1. *Gross Trailer Weight* is the weight of the empty trailer plus all trailer options, and trailer's payload (food, water, clothing, propane, extra batteries and everything not included in the manufacturer's dry trailer weight rating).
2. *Tongue Weight* is the weight directly on the hitch ball; that is, the weight a trailer adds to the rear of your car or pickup. It is essential that Gross Trailer Weight or Tongue Weight does not excess the rated capabilities of the towing vehicle.

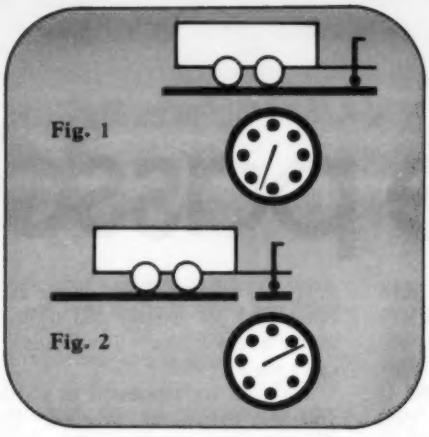


Fig. 1

Fig. 2

Other reminders are:

- Keep the trailer's center of gravity low for better stability – like the ballast in a boat.
- Store heavy articles, canned goods, tools, etc., as near the floor as possible to prevent the trailer from becoming top-heavy. Stow lightweight items such as clothes and linens at a higher level for the same reason.
- Distribute the weight of your load evenly to keep the trailer from tilting or leaning, and to prevent it from putting too much strain on the hitch or towing vehicle.
- Balance your load from side to side. One side should not be heavier than the other because your trailer will then become difficult to handle.
- Carry only essential items. Hold down the load. Painful as it may be, keep sifting out things you probably won't use because you need to keep your trailer weight to a minimum.
- Secure all doors and drawers. Nothing should be left loose to cause damage or change proper weight distribution.

How to figure gross trailer weight and tongue weight: *Gross Trailer Weight*. To determine Gross Trailer Weight, locate the kind of scale you might find at a trucking company, coal yard and other heavy haulers (look in the Yellow Pages). Weigh your trailer and you have determined Gross Trailer Weight (Fig. 1). *Tongue Weight*. To determine Tongue Weight, disconnect the trailer and place only the tongue, with the coupler at hitch ball height, on a scale (Fig. 2). If the tongue load exceeds 15% of the Gross Trailer Weight or maximum weight specified for the vehicle, shift extra camping gear and equipment rearward in the trailer to achieve recommended tongue load. If less than 10%, shift the load forward.

Select the proper hitch: For pulling lightweight Class 1 trailers with applicable vehicles, you should use a weight-carrying ball hitch. The ball hitch mounts to the underbody of the towing vehicle and accepts the full weight of the trailer's tongue. Permanently-mounted bumper hitches are not recommended.

A load-equalizing hitch should be used for trailers weighing over 2000 pounds. No more than 10% to 15% of the Gross Trailer Weight should be on the hitch ball. An anti-sway device, built into the hitch or installed separately, is recommended for trailers heavier than 3500 pounds.

Ford does not recommend hitches that attach to the towing vehicle's rear axle. They may cause power train damage.

Safety chains and brakes: Safety chains and a breakaway switch to activate the trailer's brakes are important if the coupling unit or hitch ball should fail. Chains should cross under the trailer tongue to prevent it from dropping to the road in case of failure. Check your state requirements and the trailer manufacturer's recommendations for brake system installation and adjustment.

Ford does not recommend trailer braking systems that have a direct hydraulic brake fluid connection with the towing vehicle's braking system. Any trailer brake control system utilizing a connection to the towing vehicle's hydraulic fluid system may increase the towing vehicle's stopping distance.

The passenger as

Accommodating the auto passenger, method 1: Place the passenger in the passenger seat. Fasten the seatbelt around him, making sure he is sitting on his hands. Pull the belt tight. Place a blindfold over his eyes. Stuff his mouth with gauze, old sweat socks or newspaper, and tape the mouth shut. Turn up the car radio so you can't hear his mumbles and he can't hear the traffic noises.

Accommodating the auto passenger, method 2: Have the passenger fasten his own seatbelt, leaving his hands free. Tell him to watch for hazards on the side of the road, like car doors about to be opened, or children about to run into the street . . .

We've wanted to do the first method to a few passengers, we'll admit. But we recommend the second because the "backseat driver" can be a valuable person to have around.

Now, before you scream "Heresy!" and dip your Bic into the strychnine to write us some hate mail, let us explain. And to help in that explanation, let us change the wording a little.

First, we're throwing out the term "backseat driver." We all think of a frightened, screaming aunt (or someone like that) when we hear "backseat driver." And "passenger" sounds like someone who's just along for the ride, and might be sleeping.

We'll use the term "co-pilot," because that's what we really mean. The person in your right seat (or back seat) can serve as an extra pair of eyes for you. Wouldn't it be helpful to have an extra pair of eyes when you're in downtown Metrohumungous, with 20,000 other cars all around and lights and signs everywhere? Sometimes you can't see *everything*.

Why are we interested in providing you with extra eyes, you ask? Here's why: The Air Force traffic accident figures for the first four months of 1979 show a 150 percent increase over the same period last year in the number of fatal injuries to passengers. While this may be due to their non-use of safety belts – and the investigations show none of them were wearing belts – we wonder whether a little extra vigilance on the part of the passengers might have helped the drivers to avoid the accidents.

In one case a driver making a left turn (on the arrow) was hit by another vehicle from the opposite direction that failed to stop for the light. The passenger was killed. Might he have warned the driver in time? We don't know.

In another case, the passenger in a car was asleep when another car moved out of its lane and hit the first car head-on. The passenger was killed. Again, we don't know if the passenger could have warned the driver in time, if he had been awake. But it's possible.

The fact is that passengers, be they in the backseat or in the co-pilot position, often leave the responsibility for a safe trip entirely to the driver. On the one hand, they are confident the driver

Pre-drive check: "Doors closed . . .belts fastened . . . mirrors adjusted . . ."

How do you think of your passenger . . . as a co-pilot or as a "backseat driver?"

CO-PILOT

is competent enough to handle the job. On the other, they are perhaps underestimating the complexities of driving. As we've said, there are times the driver can't see everything he would like to see.

Any slight edge might be enough to make the difference. When you're driving to work, or just to the store for a carton of eggs, he can watch for hazards. Like cars that may be leaving driveways. Or cars that may move out of a parking place on the street in front of you. Or for drivers who may open their doors without looking. Or, on the freeway, he could watch for the exit sign you want, while you're watching all the other cars. Or he could look for the address of a store or house you want. Or he can read the map while you drive on the vacation trip. Or, obviously, he can drive when you're tired.

Any of these services, and probably many others, can be entrusted to your co-pilot. There are a couple of prerequisites, however. The first is yours: You will have to change your attitude. You (probably) have a built-in prejudice against what you call the "backseat driver."

Here's a good example: Two friends were driving toward the beach. After the driver made a turn, his friend noticed the turn signal had malfunctioned and did not shut off. "Your turn signal is on," he said. The driver became angry; he said, "It's on because I wanted it on." And he continued his driving without cancelling the turn signal.

Dumb, isn't it? But that's the way most of us feel. If we don't say it we at least *think*, "Don't tell *me* how to drive. I'm a much better driver than you are. Keep your mouth shut and read a roadmap or something." As drivers, we need to stop thinking of the other person as a nuisance.

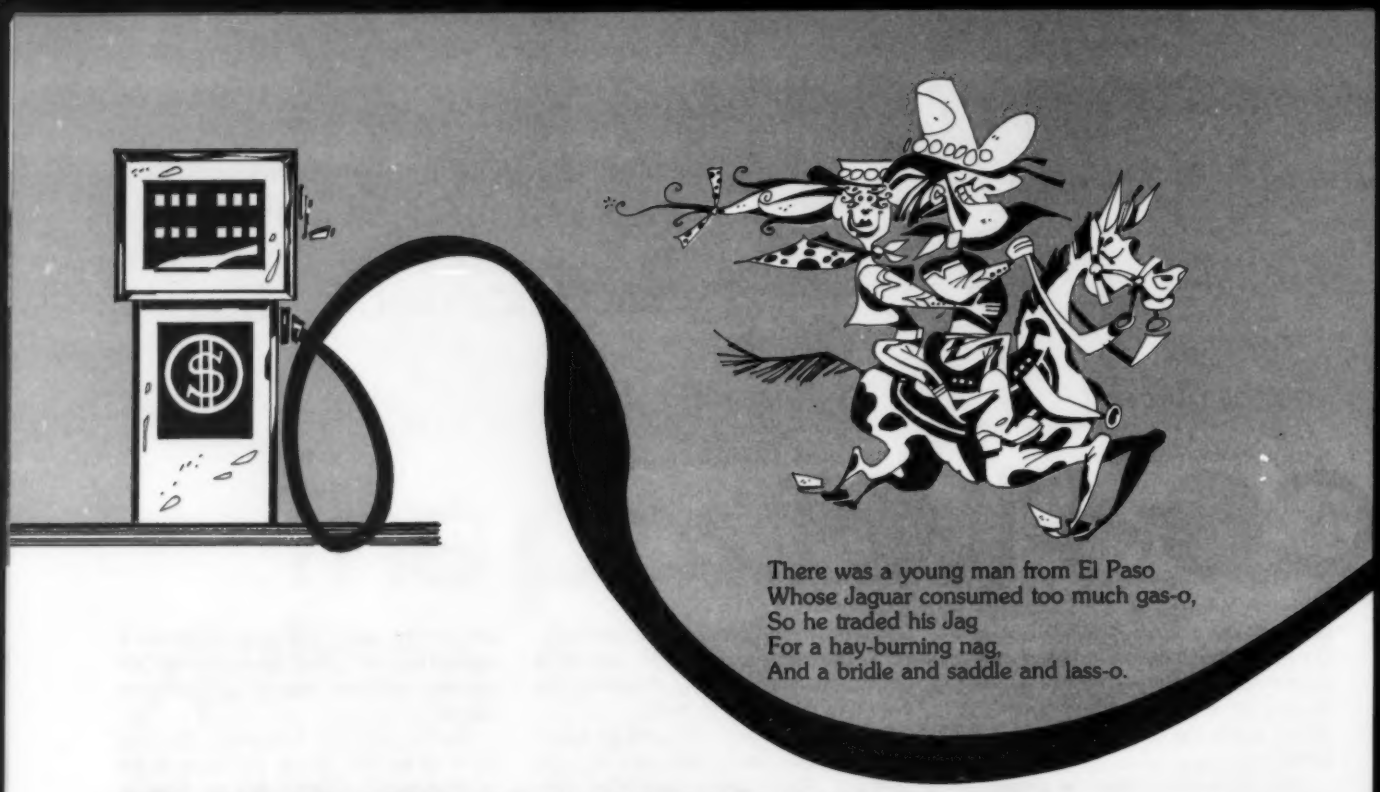
And the other prerequisite is for the passenger/co-pilot: Don't nag. A driver hates anyone who does an impression of his father when he taught him to drive: "Now watch that sign! You're going too fast! Don't let the clutch out so fast—you'll kill the engine." Nobody needs that.

Drivers can set up duties like this: "I'll drive; you watch for kids in this neighborhood. They have a habit of running into the street without looking." Tell your co-pilot what he's to do for you and you've set yourself up with an extra safety margin.

The co-pilot can do his part with calmness. As you pass a line of parked cars, he can say (quietly), "There's a guy in that car. Looks like he's getting out." As you approach a light: "Watch the cycle on the right. He's going straight."

Whenever you have a passenger along, keep him on "alert," keep him looking for hazards. If he spots a potential danger, chances are you've seen it too. But there's also a chance you might *not* have seen it, and that could make all the difference.

"Clear for takeoff . . ."

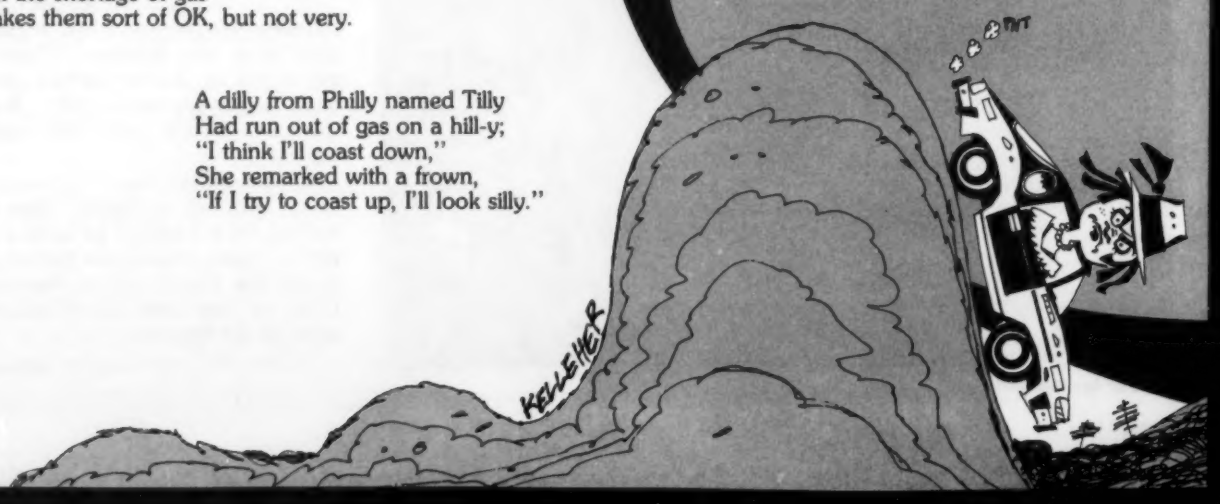


There was a young man from El Paso
Whose Jaguar consumed too much gas-o,
So he traded his Jag
For a hay-burning nag,
And a bridle and saddle and lass-o.

GASOLIMERICKS

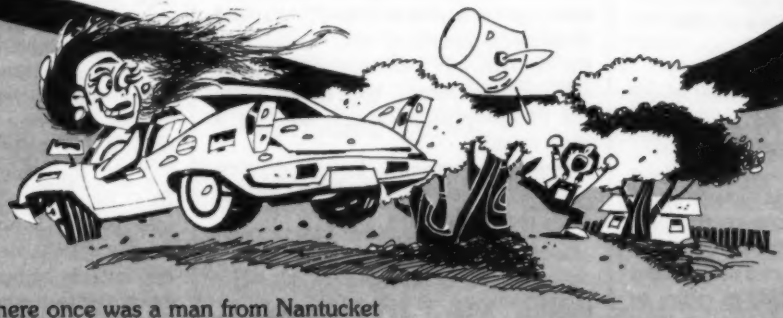
If you're buying a car, please be wary
Says an energy expert from Gary;
Big cars have class
But the shortage of gas
Makes them sort of OK, but not very.

A dilly from Philly named Tilly
Had run out of gas on a hill-y;
"I think I'll coast down,"
She remarked with a frown,
"If I try to coast up, I'll look silly."



Lost in a gas-line's obscurity,
A kid passed from youth to maturity;
At the top of the line
He was age 69
And bought gas with his Social Security.

An elegant Arab named Errol,
When asked of his splendid apparel,
Said: "I dress like a dude
'Cause I'm selling my crude
For twenty-three fifty a barrel."

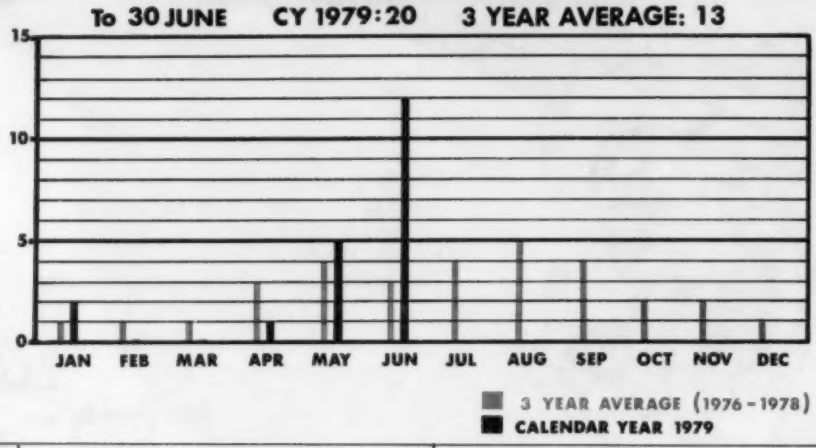


There once was a man from Nantucket
Who kept gasoline in a bucket,
But his daughter named Nan
Had a gasless sedan,
And as for the bucket, Nantucket.

A gasoline-pumper named Clyde
Told odd-numbered driver, Ed Hyde,
"We serve 'evens' today
'So please go away,
'But tell Doctor Jekyll you tried."

HOW GOES IT?

by Capt. C.S. PUGSLEY III


TOTAL MOTORCYCLE FATALITIES
To 30 JUNE CY 1979: 20 3 YEAR AVERAGE: 13
15
10
5
0
JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
3 YEAR AVERAGE (1976 - 1978)
CALENDAR YEAR 1979

These are a few of the Air Force's June motorcycle accidents. We present them solely in the hope some will benefit from the unfortunate experiences of others.

RANK:	AGE:	TYPE VEHICLE:
A1C	24	79 Harley FX 1200
SSgt	28	Passenger
A1C	22	79 Harley XL 1000
A1C	20	Passenger

Description of accident: Four people leave the base on two motorcycles for a day of fun at a local lake. After leaving the base, the four take off their helmets and hide them in some tall grass so that they can be retrieved when they need to ride back on the base again. The four spend most of the day at the lake and decide to return to the base but find their motorcycle helmets missing. After obtaining another helmet from a friend, one of the four goes on the base and gets some things so that the group can continue to party at the lake. The four return to the lake, taking the borrowed helmet with them. After midnight, two of the four leave the lake on the Harley 1200 driving northbound in the southbound lanes of a four-lane divided highway, running head-on into a southbound vehicle. Both men are dead on arrival at a local hospital. The autopsy report shows the operator with a blood alcohol level of .26 and the passenger with a .28. The other two airmen leave the lake around one o'clock in the morning and go down the same four-lane road as their friends – except they are travelling in the correct lane. The second motorcycle strikes the Sheriff's vehicle which is parked with emergency lights flashing at the scene of the previous motorcycle accident involving their friends. (A Sheriff's deputy attempts to warn the approaching motorcyclists by waving a red-coned flashlight, then dives for a nearby ditch when he sees that a crash is imminent.) The 22-year-old motorcycle operator, who is wearing the borrowed motorcycle helmet, suffers lacerations to both thighs while the unhelmeted passenger dies of a skull fracture.

Probable causes: Drunk driving (they had been drinking most of the day); reckless driving.

RANK:	AGE:	TYPE VEHICLE:
Amn	19	78 Yamaha 650
A1C	19	79 Kawasaki 650

Description of Accident: An airman with less than one year of service is driving at 85 miles per hour on a four-lane divided highway. An airman first class is following the airman at the time of the accident. The airman's motorcycle develops a high-speed wobble, and he falls to the roadway. The A1C is unable to stop prior to impacting the fallen motorcycle. Both men are wearing motorcycle helmets. The A1C's helmet comes off before striking the ground because the chin strap is not fastened, and he dies of a fractured skull and pulmonary contusion. The airman dies of multiple extreme injuries.

Probable cause: Speed.

RANK:	AGE:	TYPE VEHICLE
SrA	22	79 Kawasaki 650

Description of accident: An individual is attending a Saturday night party with friends and notices a brand new 1979 Kawasaki 650cc motorcycle. He talks the owner into letting him borrow the new motorcycle and rides away without a helmet at 2300 hours. Twenty-five minutes later, the airman is driving the motorcycle at 75 mph in a 35 mph speed zone on a dry, asphalt, four-lane highway two miles from the base. As he approaches an intersection, a non-Air Force civilian driving a 1972 Honda automobile turns left in front of him. (It is assumed the driver did not see the motorcyclist due to the latter's high rate of speed as well as a slight rise in the road which crests just prior to the intersection.) The motorcycle impacts the right side of the car, and the force rolls the car on its side. Upon impact the airman is thrown 125 feet down the road, skidding approximately 25 feet on his head. He dies from an open and depressed skull fracture to the back of his head. The investigation finds that he had a .28 blood alcohol level at the time of the accident, had less than one year experience riding motorcycles, and had not attended the four-hour Air Force motorcycle course.

Probable cause: Drunk driving; speed.

Timely Topics

GAS SAVING TIPS

Stay away from the popular "wide-track" tires if you want top mileage from your car. They are strictly performance and "looks" tires and will cut mileage. The narrower the tread *width* of a tire, the better its gas conserving qualities. Narrow tread tires produce less friction at the road surface and thus create less rolling resistance, making it easier for the car to move. If it were possible to equip cars with bicycle tires, the gas mileage would be phenomenal. Remember: the narrower the tread, the better the gas mileage.

OCCUPANT EJECTION IS GREATEST HAZARD

A recent study concludes that the most dangerous occurrence in passenger car crashes is the ejection of the vehicles' occupants. The study also found that in 6,216 major car crashes, safety belt use among the 13,525 occupants involved was even lower (8.4 percent) than the "very low" national belt use rate of 14 percent.

The crashes analyzed were serious enough to disable at least one of the cars involved. Nearly one-third of the persons killed and nearly a quarter of those seriously injured in these crashes were ejected from their vehicles.

Occupant ejections occurred most often in rollover crashes, which were responsible for a large number of deaths and injuries. After rollover crashes, ejections occurred most frequently during side impacts.

Describing the movements of the ejected occupants during the crashes, the study said about half went through either the windshield or the side windows. About half of the side windows through which people were ejected were rolled down. Forty percent went through opened doors, three-quarters of which had damaged latches or hinges.

The government concludes that more work needs to be done to reduce the likelihood of ejection through side windows and to strengthen doors. There is concern that the many new cars with sun roofs and "T"-shaped roofs—which have side windows that merge with removable translucent roof panels located above seating areas—may make this problem even worse in future.

MOTORCYCLE LIGHTING

In the interest of stemming the current flood of motorcycle deaths and injuries, the Insurance Institute for Highway Safety has petitioned the National Highway Traffic Safety Administration to require that all motorcycles and mopeds manufactured for sale in the U.S. have their headlights and taillights wired to shine whenever their engines are running.

In its petition, the Institute cited the experience of states requiring motorcycle lighting during operation. This research indicates that deaths and injuries are substantially reduced by such laws.

The Institute says that the requirement for such lighting is practical since a large proportion of two-wheeled vehicles now sold in the U.S. already are required by state laws to have headlights wired through their ignitions. The new rule would simply cover all running lights and not just headlights.

PASSIVE BECOMES AUTOMATIC

For a good many years we have been talking about active and passive restraints, meaning those you have to do something about and those you don't. But apparently some people don't think such terms are completely understandable. So from now on, air bags and belts that require no adjustment or fastening to put into use will be called "automatic" restraints. Belts that must be attached each time by the user will be called "manual" restraints.

AUTOMATIC TRANSMISSIONS

GSA recently put out a bulletin recommending that agencies take precautions in using motor vehicles equipped with automatic transmissions. The National Highway Traffic Safety Administration (NHTSA) has issued a consumer advisory on the use of 1970-78 Ford sedans, station wagons and light trucks with engines having a displacement of 300 cubic inches or more and equipped with C6 or FMX automatic transmissions. NHTSA has determined that a tendency of the automatic transmissions on these vehicles to jump from "park" into "reverse" gear poses a potential hazard.

Federal agencies are urged to inform operators of these vehicles and all other vehicles equipped with automatic transmissions to take the following precautions:

(1) Before turning the engine off, push the gear selector all the way to "park" position.

(2) After turning the engine off, pull on the selector lever (without raising the lever) to make sure that it is securred in "park."

(3) Set the parking brake securely.

(4) Do not use the "park" position as a substitute for setting the parking brake.

(5) Never leave the vehicle unattended with the engine running, not even for a brief period of time.

Federal agencies, in accordance with the NHTSA consumer advisory, are requested to report any accidents or malfunctions that may have occurred in connection with the use of the vehicles identified to the National Highway Traffic Safety Administration, Department of Transportation, Washington, DC 20590. The report should include a summary of the cause of the accident or a description of the malfunction, the make, model, year of the vehicle, and if possible, the vehicle identification number.

FCC WARNS CBers

The Federal Communications Commission (FCC) has warned citizens' band (CB) radio operators that improper placement of transmitters in their cars may result in gasoline explosions. Especially hazardous are transmitters installed in the trunk or with bumper-mounted whip antennas because of their proximity to the vehicle's gas tank and filler pipe.

CB LICENSE FEES

The Federal Communications Commission has issued the following public notice:

Please do *not* apply, at this time, for refund of a CB license fee. Any applications received for the refund of fees that were $20 or less will not be considered under Phase I of the FCC's Fee Refund Program.

CB license fees and other fees that were $20 or less will be included in Phase II, which is expected to begin early in 1980.

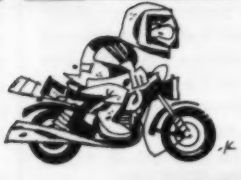
DOUBLE CLUTCH

continued from page 2

will have on electronics. The Motor Vehicle Manufacturers Assn. has a committee reported to be "very concerned" over electromagnetic compatability problems.

Autoweek reports that many members of the auto industry are calling for an EMI inventory to be conducted by the Environmental Protection Agency. Apparently it would take a national or international body to effectively locate, measure and classify interference.

motor



cycles • cyclists • cycling

Some random thoughts about the whole cycling scene

I was feeling quite secure as I wheeled my 4-wheeled ark towards the base this morning. There's something about having two and one-half tons of metal around you that gives you that feeling. All went well until a 10-wheel cement mixer and I nearly had an altercation at an intersection. A bit of braking coupled with some subtle steering inputs relegated the incident into the near-miss category, but the whole thing got me to thinking . . .*what if* I had been hit?

This morning, I was driving a '66 Lincoln Continental 4-door . . . not exactly a lightweight in car vs car accidents . . . but what chance did I have against 23 tons of fully-loaded cement mixer? Mathematically about the same as a 500-pound motorcycle vs a large luxury car . . . in other words, not very good.

No-fault insurance: Let's assume for a minute that I *did* get pranged. With no-fault insurance, *my* company would pay for *my* repair costs (both to me *and* my car). Let us also assume that in every instance of a car/cement-mixer accident, the car driver would get hurt a whole lot more often and a whole lot more seriously than the cement mixer and its driver. However, since *his* insurance company had to pay only a little to get the truck and driver fixed up, and since *my* insurance company had to pay a whole lot to get me and my car fixed, whose rates do you think are going to be affected? RIGHT . . . mine!

I think the same could be said for car vs motorcycle accidents. It's a fact that 75% of car vs cycle accidents are the "fault" of the automobile driver . . . however, the insurance companies, under no-fault, see only that each time one of their cycling policy holders gets hit, it costs them a boodle of bucks because of the severity of the accident. The result? You, as a cyclist, have your rates raised to the ceiling because of heavy cost to the insurance company, *even though the accident wasn't your fault!*

I'm not sure no-fault insurance is going to work where motorcyclists are concerned, unless the financial risk is spread among those who *inflict* the damage . . . namely, the automobile drivers. I also think we're gonna have a hard time convincing car owners of the righteousness of our situation.

Insurance in general: If you ride a motorcycle, you probably know that we have more than our share of accidents and thefts (according to insurance company sources, the mileage death rate for cycles is about four times as great as for all motor vehicles). And it's difficult to deny that on a case per case basis, cyclists who get involved in accidents are injured in a greater percentage of those accidents than car drivers.

So insurance companies are pretty leery of insuring cyclists and their mounts. However, some do offer coverage for us.

Liability insurance pays for personal injury and property damage to others; *passenger liability insurance* pays for a passenger's injuries if you are held liable; *collision insurance* pays for damage to your machine regardless of who is at fault; *comprehensive insurance* covers damage to the bike from things like vandalism, fire, theft, storms, etc.; *uninsured motorists insurance* pays for damages when you are involved in an accident in which the other party is liable but has no insurance; and *medical payment insurance*, which pays for the cost of treatment for injuries due to riding your motorcycle.

These coverages are all well and good, *if you can get them*! Hardest to get is medical payment insurance . . . it's very expensive, when you can find a company that will carry you, and because of the cost factor, many cyclists are neglecting to carry medical payment insurance.

Why should you carry it if you can get it? According to a release by the Insurance Institute for Highway Safety, a "typical" cycle accident in which there is a leg injury (not head injury, now) in which the services of an orthopedic surgeon are required, costs about $10,000. Head injury accidents with some resulting paralysis can cost about $50,000. Have you got that kind of money?

Most of us don't, so the smart thing to do is buy insurance. However, as I mentioned above, many cyclists don't bother with it because it can be both expensive and hard to get.

So, assuming (please forgive the excessive use of the word "assume"; I know what people say about it but in this article I feel its use is legitimate) that many cyclists are opting for the "hope it doesn't happen to me" clause, or even worse, the "it can't happen to me" school of thought, we've got a *bunch* of non-insured cyclists out there. I'm including those of us in the military who ride without insurance, too. We think we have our medical problems solved because the service will pick up the tab for our hospitalization, but think again, Bunky . . . ever heard of a "line-of-duty determination"? A line-of-duty determination could go against you, and Uncle could bill you for services rendered.

Now, if you don't carry insurance and you're involved in an injury-producing accident, who picks up the tab? After your cash is gone, it's usually the state or the county who pays.

Does that raise any questions about what people are using for justification for mandatory helmet laws?

Helmet laws: Before those of you who are opposed to mandatory helmet laws begin to whimper and say "Oh, no, not another pro-helmet law diatribe," read on a little bit.

First off, DRIVER Magazine (and I) have *never* spoken out for or against mandatory helmet use. Our editorial position is, and always was, "you've got to use a helmet on-base, and in those states where helmet laws exist. We ask you to please use your helmet at all times, but we feel it is inappropriate for us to comment on mandatory helmet laws." That will be our policy in the foreseeable future, too.

Secondly, to be fair, you've got to look at helmet laws from all sides. There are three camps where helmet laws are concerned. One is: "I wear a helmet because I choose to do so, not because a law says I have to"; another is: "I won't wear a helmet, period . . . those things are dangerous"; the third is: "I wear a helmet because the law says I will. "Let's examine the rationale for each argument.

"I wear a helmet because I choose to do so, not because a law says I have to." This is probably the attitude of the vast majority of motorcyclists,

continued

continued

although more and more seem to be joining the anti-helmet law folks while still wearing their helmets.

To get right down to brass tacks, this is probably the best attitude to have because you can wear your helmet without appearing to be pro-helmet law (and still protect your head). Mom's apple pie and the flag never took precedence over that great birthright of Americans, Independence.

However, there may be a small problem associated with this attitude. Because of all the good (and true) pro-helmet info being passed along by us and many others, some riders may subconsciously form the opinion that "since I'm wearing a helmet, and since they're so good, I must be invulnerable to injury." T'ain't so, and never has been. A helmet will protect your head from injury, but it won't protect your ankle and it won't prevent an accident.

"I won't wear a helmet, period . . . those things are dangerous." I don't feel that a statement like this is anything other than an oft-repeated war story. "Well, I remember the time ol' Joe was ridin' along and got hit by a truck . . . dang helmet broke his neck."

A statement like this was probably uttered by a friend who witnessed the accident, and it may have seemed to him, at the time, that the helmet did cause an injury. However, you must honestly consider the probable fact that this observer was not a trained doctor or pathologist and was in no way qualified to make such an observation. His statement was based on emotion, not fact.

"I wear a helmet because the law says I will." Although this attitude produces the result that pro-helmet people want (you, wearing your helmet) it really isn't the best reason to wear one. Just consider, for a moment though, that state legislatures that pass helmet-use laws probably are not doing so just to hassle motorcyclists. They are doing it because that is the only way they can respond to the ever-increasing death rate among us cyclists. They are *not* riders, so they can't be expected to see the emotional side of the anti-helmet argument. They only see results . . . in this case, they see that since they've passed a helmet law, cyclists are wearing helmets. And since it's a proven fact that helmets reduce the prime cause of cycle-related deaths, head injuries, the helmet laws are working to keep their constituents alive.

Also keep in the back of your mind that legislators are more aware of the societal costs involved with many injury cases. Like I said before, if you don't carry insurance, and your money runs out, the state, city, or county foots the bill. When a non-riding voter asks a legislator what he's done to reduce the money spent by tax-supported hospitals, the lawmaker can say, "Look here, I just got a helmet law passed. We expect this law to help prevent X amount of head injuries and therefore save the state Y dollars." The voter is happy, the legislator is happy, everybody's happy, except the anti-helmet-law rider. But again, I don't really think that too many lawmakers are out to "get" us . . . the majority of them see helmet laws as being beneficial to all concerned.

The "but I didn't even see him, officer" syndrome: We all know that the majority of cyclists who are injured and killed get into trouble in intersection-located accidents caused by a car hitting a cyclist. But what do we do with this fascinating bit of information? We can take extra care at intersections, sure, but let's examine that statement that most motorists make at the accident scene after they've just run down an innocent Yamasaki.

First off, what did you expect the driver to say? "Well, sure, I saw the biker, but I ran him down anyway"? Common sense and your own personal experience will tell you that most people don't want to get sued or go to jail. In fact, I even believe that most motorists *don't* want to run us down, even though evidence suggests otherwise. No one really wants to be the cause of another person's suffering. Even the shooting incident in "Easy Rider" showed the man who had just shot the biker "in fun, just to scare him" as being both remorseful and scared. I think most people are like that. A psycho motorist might play bumper tag with a biker once in a while, but these incidents are really pretty few and far between.

When a car hits a bike at an intersection (or anywhere, for that matter), why does it happen? Not because the motorist really wanted to run the biker down, but perhaps because the driver *truly* didn't see the bike.

"How can this happen?" you say. "How can a driver who has theoretically passed his or her state's driver licensing vision requirements fail to see a 220-pound ME, on a seven-foot long, four-foot tall, bright-yellow, fairing-equipped motorcycle?"

Well, Bob Carpenter of *Road Rider* Magazine has a pet theory about how this can happen, and I agree with it. Bob's theory is based on the fact that the motorcycle does not produce enough of a "threat" to a car driver. As Bob sees it, a motorist will actually see a motorcycle, but then subconsciously discard what he has just seen because he knows that the cycle can't hurt him.

As a basis for his theory, Bob gives the example of what has transpired in his little town of Laguna Beach, Calif. Bob is, among other things, a dedicated jogger. Each morning, he is up early and out running the streets of his neighborhood. On several occasions, Bob had nearly been run down at intersections. "I couldn't believe it," he says. "I would make eye contact with the driver, just as I had been taught to do on a motorcycle at an intersection, then I'd begin to cross the street, AND THE @#$%¢ CAR WOULD TURN RIGHT AND MAKE A PASS AT ME."

Out of pure self-defense, Bob's agile mind concocted a possible counter

to the problem of incessant automotive assaults. He would stand on the corner, make eye contact with a driver, and then slowly edge out into the intersection. If the car made a move toward him or began to turn in his direction, he would stop moving, and begin to yell and pound on the hood or fender.

Of course, the drivers did not respond to this treatment very well, but an interesting thing happened. As Bob spread his little theory among other neighborhood joggers, they began to do the same thing. The result was that within a very short period of time, there were *no* attempts at automotive mayhem on the jogger/driver front. It was apparent that the drivers had learned to take the joggers as a "threat" . . . someone who could, and would, yell, scream and kick. They then began to give the joggers their right-of-way and to treat them with respect. Incidents of joggers vs cars have dropped to nil.

To further reinforce his "threat" theory, Bob, and Roger Hull, *Road Rider's* Editor/Publisher, concocted an experiment. They took off up Laguna Canyon Road on two separate motorcycles. Bob was riding a big, shiny BMW and wearing a helmet and street clothes. Roger rode his black-and-white Harley-Davidson and wore his black, white and gold, shorty police-type helmet and black riding outfit. They proceeded up the road at legal speed in the normal traffic mix, but about 100 yards apart. The results were amazing.

Motorists would not let Bob pass, would cut him off, and would make rude gestures to him. Meanwhile, 100 yards behind, Roger was being accorded plenty of courtesy. The drivers would look in their rear-view mirror, spot him immediately, and either slow down or pull over to let him pass. They did not object if he followed too closely, or if he stuck his tongue out. To them, he was a cop, spelled C-O-P, and that in turn spelled "threat." "A cop can pull me over and embarrass me in the community." "A cop can take away my license with a ticket." All the reasons police are normally given a wide berth applied to Roger and his black-and-white Harley.

The same experiment was carried out in downtown traffic and along the Coast Highway. The results were the same.

Now I know that this wasn't a scientifically-designed and properly-controlled experiment, and no agency would accept the data Rog and Bob gathered. But the whole thing sure does lend great credence to Bob's theory. Until automobile drivers learn to really "see" motorcyclists, the problem will continue.

I'm not advocating going out and kicking the next car that cuts you off . . . you'll probably get arrested and fall off your scoot to boot. But I do think there's something to be said for Bob's theory. Conspicuity alone is not enough. Eye contact alone is not enough. We've got to figure out a way to make drivers "see" us. Perhaps education is the answer.

Perhaps the "threat" of a motorcycle will be more real to drivers as cars get smaller and bikes get bigger. Perhaps if more drivers were sent to jail or made to pay a heavy financial price when they were proven to have caused an accident. Perhaps, perhaps, perhaps . . . well, it's food for thought, anyway.

The invisible rider: All of the foregoing miscellaneous ramblings notwithstanding, I personally feel that one of the better ways to keep from getting dented is to ride as though you are invisible. It's an old trick, but it's one that has served me well.

If you ride as though you were invisible, you tend to reduce the accident potential to things that *you* have direct control over . . . the bike skidding, the chain breaking, a tire going flat. There are ways to handle all of these situations. But it's difficult to convince a 4,000-pound car in a brake failure situation that it doesn't want to pin you against the car in front. Better to ride as if you are invisible and stay out of traps in the first place. If *you* ride it, *you* control it. The whole motorcycling thing is a matter of your choice. What to ride, where, when, how . . . all up to you. I know why I ride, but it's pretty personal and I don't feel I owe anyone an explanation. I imagine many of you riders feel the same way.

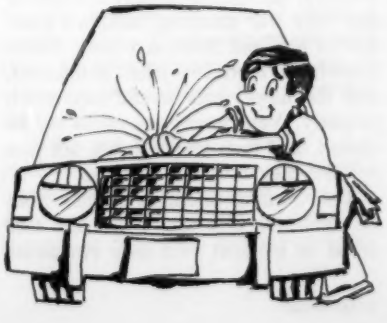
If you respect yourself, really respect yourself, you'll find that your riding will be safer, less stressful, and a lot more fun.

THE END

Well, those have been my last official thoughts on the whole thing of cycles and cycling. My tour with DRIVER is over soon, and I'll be pressing on to other things. I hope that somewhere along the line I've written an article that you may have enjoyed. I'll even be satisfied knowing that some of you (or almost all of you, in one memorable instance) disagreed with me, at least enough to write and tell me so. To a writer, knowing that someone out there reads his stuff is the highest high. I hope I've given at least one piece of advice that has saved some one's bacon, somewhere along the line. That'd be the greatest reward of all.

Thanks for listening to me, writing to me, agreeing and disagreeing with me, and for liking the Backyard Mechanic. I appreciate it.

SSgt Don Holt



The Great Debate

Synthetic oils and lubricants, aftermarket oil additives, and the "IF" factor

The following discussion of synthetic oils and lubricants and aftermarket oil additives is fairly straightforward . . . it's the "IF" factor that may be a bit complicated to explain. OK, you ask, "What in heck's an IF factor?" Well, the IF factor is the thing that determines whether or not synthetic lubes and oil additives are a good idea for YOU in YOUR particular situation.

Let's do the groundwork on synthetics and additives, and then swing into the pros and cons of their value to you as a car owner or driver.

Synthetic Oils and Lubricants: A quick search of the history books reveals that synthetics aren't as new as many of us suppose. As far back as 1930, research programs were under way to develop alternatives to petroleum-based lubricants.

But it was during World War II that the need for a lubricant different from petroleum was made apparent. During the battle for Stalingrad in 1942-43, the German Army discovered that their war machines couldn't function in the cold Russian winter. Petroleum-based lubricants jelled in the cold, and the huge guns would not recoil properly. Vehicle engines could not be started, and tank tracks would not turn because their lube had "frozen."

The German scientists started work on synthetic oils and lubricants that could be blended with their petroleum counterparts to depress the pour point (covered in the Mar '78 issue of DRIVER) and provide lubrication at extremely low temperatures.

In 1947, the English developed the first commercial application of ester, or synthetic, oils by using them in turbo-prop aircraft engines where high temperatures and heavy parts loading caused regular petroleum-based lubes to break down.

But it was the development of the jet engine that really brought about the introduction of synthetic lubricants. By this time the field of synthetics had broadened from the use of esters to include polyol, polyalphaolefins, and alkylated benzenes. The main advantage of these synthetic lubricant bases was the higher engine operating temperatures that they allowed . . . a complete about-face from their beginnings as cold-conquerors.

The synthetics also gave added benefits in the form of greater engine cooling, less designed-in engine weight and bulk, and greatly extended oil drain intervals. Remember, unlike internal combustion engines, combustion products in a jet engine do not mix with the oil.

The attributes of synthetic lubes and oils attracted some of the best petroleum and chemical engineers in the country, and today, automotive engines as well as jet engines benefit from their research.

Four Basic Types: There are four basic chemical classes from which the synthetics derive. Two belong to a class called esters, which are made by reacting an alcohol and an acid, and two others are synthesized hydrocarbons in which heavy molecules similar to those in natural petroleum are constructed atom by atom from various hydrogen- and carbon-containing light molecules. These four types are:

- The dibasic acid esters or diesters. This is the base for Amsoil and Eon E-11.
- The polyol esters. Base stock for All-Proof and Eon D-20.
- Polyalphaolefins. A synthesized hydrocarbon that is the base for Mobil 1 and Chevron Sub-Zero Fluid.
- The alkylated benzenes. Also a synthesized hydrocarbon, it is the base for Conoco's Polar Start DN-600.

All of these oils are API SE rated (see Mar '78 DRIVER) and are suitable for use in any car.

General Advantages: There are basic advantages that synthetics have over conventional oils. There are also dis-advantages, but we'll get to those in the "IF Factor" section.

Synthetics usually have better thermal and oxidative stability than petroleum oils. For instance, the lubrication

BACK TO BASICS

range of a good synthetic is from −60 degrees F to +400 F. Petroleum oils range from 0 F to +300 F. The flash point for synthetics is about 470 F while petroleum oils flash at 350 F. In an evaporation test, a synthetic will lose only one percent of its volume over a period of time, where a petroleum oil will dissipate over 28 percent. During the SE test for viscosity increase over a 64-hour period, petroleum oil will increase viscosity by about 100 percent, while a synthetic will increase about 10 percent.

A telling statistic is the amount of amps an engine draws when it is cranking. To crank a normal engine at 250 RPM with the temperature at −40 F requires about 22 amps with synthetic oil, and about 270 amps with petroleum-based oil. Synthetics also have increased resistance to oxidation at high engine temperatures so they are less prone to varnish formation. Also, since synthetic oil is slipperier, friction is less and therefore engine temperature is less . . . all of which lessens chances of varnish formation.

Synthetics have better high temperature fluidity. Synthetic 10W-40 oil is serviceable at 480 F and has a pour point of about −60 F. We're all familiar with the advantages of synthetics for low-temperature use, but going in the other direction, underhood temperatures have been creeping up for years due to the added number of accessories and the particular requirements of many emission control systems. More cars are used today to haul trailers and sustained high-speed driving is commonplace.

Delving a little deeper into synthetics' ability to withstand high temperatures, we find that most petroleum-base oils will begin to oxidize rapidly at about 250 F. With the addition of the correct additives, that limit can be upped to about 300 F. Since synthetics are made from more stable molecules, diester stocks can be made to easily withstand temperatures 200 degrees above that at which petroleum-based stocks will fail, and synthesized hydrocarbon stocks can be made to do about the same.

Gulf claims an ignition temperature of 710 F for their Synfluid, and states that the thermal-decomposition temperature is about 625 F. Why is high temperature capability important in today's oils? If you read the Oil article in the Mar '78 issue of DRIVER, you'll get a good idea of what oil has to do in your engine. In the early '70s, large displacement engines operating in the southwest while pulling heavy loads (like a boat) began to go out to lunch with regularity. The driver would take a break for lunch and the oil would cool down and virtually solidify . . . the engine wouldn't even turn over. In a copyrighted article about synthetics, *Popular Science* columnist Smokey Yunick recalled that "with some of those big '69 engines, we'd pull off the oil pan and take a knife and cut out what was left of the oil and bounce it on the floor.

"The problems that plagued those engines have been largely solved, but temperatures are creeping up toward that trouble level again. A properly formulated synthetic can overcome such problems. A paper was recently published in which a comparison was made between high-quality SE mineral oils and ester lubricants. They were put through the severe Oldsmobile IIIC high-temperature test. To pass, the oil must thicken no more than 400 percent over 40 hours of continuous running. Several mineral oils thickened 75 and 150 percent, and from 600 to 1000 percent in 64 hours. Esters thickened between 6 and 9 percent."

The natural viscosity characteristics of synthetics make it possible to use few viscosity index (VI) improvers in most formulations. Since VI improvers are usually heat sensitive, leaving them out produces a more stable oil.

Synthetics have a very low coefficient of friction. If you over-simplify the theory of synthetics, you could imagine that millions of tiny ball bearings function to reduce friction and drag. This is why the synthetic manufacturers make their claims for higher gas mileage and increased cranking speeds . . . synthetics are slippery.

Since synthetics are so slippery, they allow metal engine parts to move against each other with little friction. This means that little or no metal is worn off parts. It also means that rings will seal better and proportionately less combustion byproducts will get down into the oil. All in all, this means that extended drain intervals may be possible with synthetics because the chances (and causes) of oil contamination are lessened.

Oil consumption (in a healthy engine) may be lessened with synthetics because of their better thermal stability. Since synthetics are less volatile, or prone to evaporation, than petroleum oils, they may decrease oil consumption up to 40 percent. Remember, though, that we are talking about a healthy engine. If your engine has worn rings or cylinder bores, or leaking oil seals, use of a synthetic may aggravate the problem.

Better gas mileage is usually a byproduct of synthetic oil use, but there's a great deal of disagreement about *why* mileage improves. One school of thought is that since many synthetics

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are rated 5W-20, the mere fact that the oil is light and free-flowing accounts for the majority of the gasoline savings. Another school thinks that a synthetic of the same viscosity as a conventional petroleum oil will help deliver better mileage because of the difference in what happens to an oil's viscosity under extreme pressure. Synthetics maintain viscosity better under pressure and therefore reduce friction which results in better mileage. Also, synthetics flow more freely at low or engine start-up temperatures where conventional oils extract a large mileage penalty until they reach their optimum operating temperature.

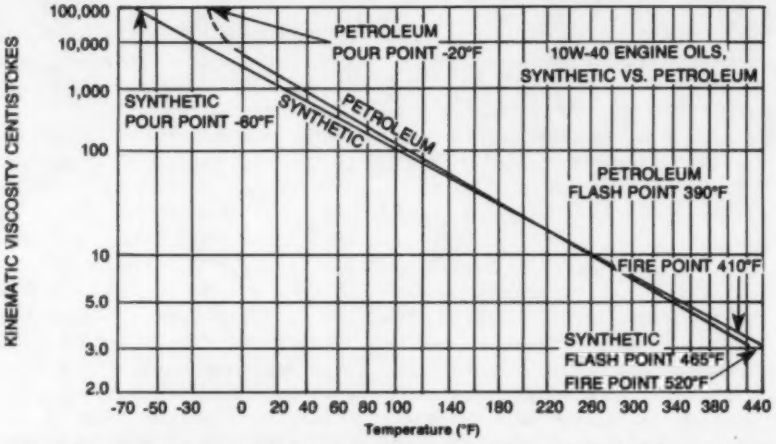
Another facet of the claims about better mileage may be the fact that most synthetics have a much higher film strength than conventional oils. Film strength refers to the amount of pressure it takes to squeeze the oil out from between two pieces of flat steel, and the higher the film strength of an oil, the more tenacious it will be about clinging to operating engine parts. If a film of oil stays on rubbing surfaces, it stands to reason that the surfaces will create less friction (and gasoline use) than surfaces that are not well-lubricated. Synthetics have a nominal film strength of about 3200 psi whereas conventional oils average around 400 psi. It is conceivable that since synthetics have a higher film strength, they will stay on the main friction-causing parts (like the main- and rod-bearings) more of the time than will petroleum-based oils.

Also remember that since synthetics allow easier cranking, they cause the battery to discharge less during starts and this means that the engine-driven alternator doesn't have to work as hard to recharge the battery. Any time you reduce the load of an engine, you're going to get better mileage.

Extended drain intervals seem to be the other big selling point of synthetic oils. *Popular Science* has verified cases of synthetic oil-equipped engines going as far as 100,000 miles without an oil change, but you'd better believe that if you try this trick, you had best be prepared for trouble.

Most reputable manufacturers of synthetics say that you can go as far as 25,000 miles or one year between changes, but they qualify that figure by saying "under normal conditions" or "when used in conjunction with our special oil filter." Yes, synthetics *can* go for longer intervals between changes than can conventional oils, but they do have their limits and these limits are more limits of economy rather than chemical composition.

Synthetics can go longer than conventional oils for several reasons. One is that they are inherently better at the detergent/dispersant function. They clean engine parts better and are able to hold the material in suspension longer. Another is that conventional oils break down with heat and time and form resins and insolubles . . . synthetics don't. A third reason is that a synthetic's ability to neutralize acids is much greater, with some synthetics



Mineral oil thickens rapidly below 0°F, thins at high temperatures. Synthetic oil, here a diester, has inherently better high- and low-temperature qualities.

OLDSMOBILE SEQUENCE IIIC	API SE Requirements	Mobil 1 Std.	Mobil 1 Ext.
Vis. Increase @ 100°F (37.8°C)			
@ 40 Hrs. %	400 Max.	19	33
@ 64 Hrs. %	—	23	39
@ 128 Hrs. %	—	—	112
Average Eng. Ratings, Hrs.	64	64	128
Piston Skirt Varnish	9.3 Min.	9.3	9.3
Oil Ring Land Varnish	6.0 Min.	8.4	7.2
Sludge	9.0 Min.	9.5	9.5
Ring and Lifter Sticking	None	None	None
Cam or Lifter Scuffing	None	None	None
Cam Plus Lifter Wear (In.)			
Average	0.0010	0.0006	0.0010
Maximum	0.0020	0.0010	0.0020
FORD SEQUENCE VC			
Avg. Engine Ratings, Hrs.	192	192	384
Avg. Eng. Sludge (10 = Clean)	8.5 Min.	9.6	8.9
Avg. Piston Skirt Varnish (10 = Clean)	7.9 Min.	8.4	8.2
Avg. Eng. Varnish (10 = Clean)	8.0 Min.	8.8	8.0
Oil Screen Clogging, %	5 Max.	0	0
Oil Ring Clogging, %	5 Max.	0	0
Ring Sticking	None	None	None

Data under "Std." column show Mobil 1's results in regular sequence test; numbers under "Ext." after double-length tests. Perfect varnish/sludge score 10.

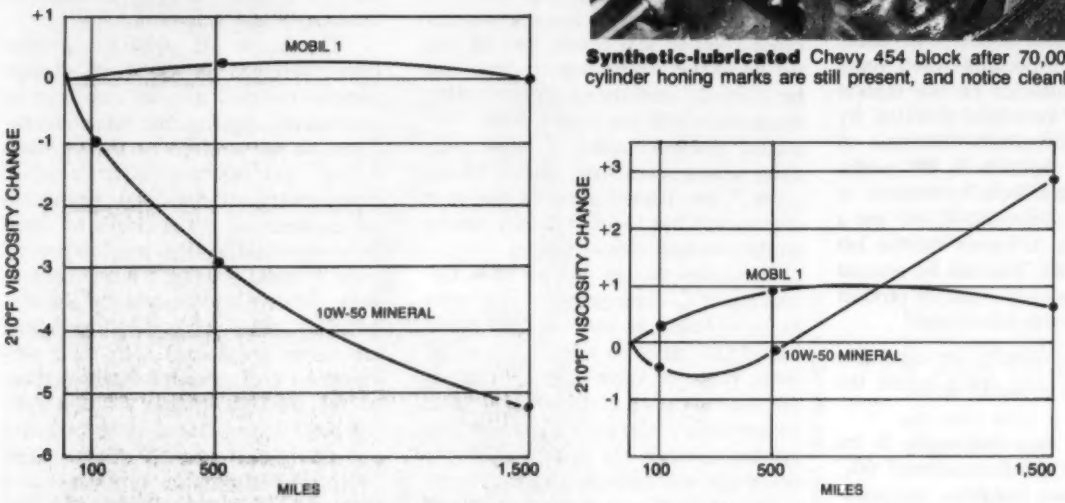
even being able to disperse acid already formed.

So, overall, we have in synthetics a series of products that can: 1. Increase gas mileage; 2. Prolong engine life by decreasing engine temperatures; by keeping sludge, varnish, and acid formation at a minimum; by keeping metal-to-metal contact at a minimum thereby reducing wear; and by providing quicker warm-ups; and 3. Go longer periods between changes. Now we come to the "IF Factor."

"IF Factor": What is the IF factor concerning synthetics? Simply put, it's what someone says when synthetics are mentioned. "IF synthetics are so

Photo courtesy Karl Olsson, Copyright AMSOIL Corp.

Synthetic-lubricated Chevy 454 block after 70,000+ miles. Factory cylinder honing marks are still present, and notice cleanliness of oil gallery.



VI-improved oils shear, lose their viscosity in severe service. Severe shear test in manual transmission shows greater shear resistance of synthetic (left). High-temperature oxidation in crankcase causes oil thickening of 10W-40 mineral oil, little change in synthetic (right).

darn good, then why doesn't Detroit use them in their new cars?", or, "IF synthetics are the hot set-up, why don't the Armed Forces buy them so their vehicles will last longer?", or even, "IF synthetics work so well, why aren't people knocking down the doors of the synthetic oil manufacturers to buy their product?"

Without endorsing or condemning synthetics, let's attempt to answer these "IF" questions and let you draw your own conclusions.

Q. Why doesn't Detroit put synthetic oil in new cars?

A. Because you cannot use synthetic oil as "break-in" oil. It is just too slippery, and rings, valves, etc., will not "seat" properly. High spots left by machining processes will not wear down correctly and bearings will not take the correct "set." Even the manufacturers of synthetics say not to use their products until your new car has reached the 6,000-mile mark.

Q. Will use of a synthetic void my new-car warranty?

A. As long as the engine was broken-in with the oil the factory installed, no. To the best of our knowledge, there has not been a healthy engine that was harmed by synthetic oil as long as the specified oil change interval was followed.

Q. If it's so good, why aren't the Armed Forces using it?

A. They are, but only in Arctic areas where the unique low-temperature qualities are prerequisite for war readiness. The Armed Forces don't use it in the normal chain of supply for one reason . . . it's too expensive initially. The Armed Forces buy oil like they buy everything else, by bids. They establish performance parameters for the product they wish to buy, and the person or product with the lowest bid gets the contract. The Government specifies that the oil they buy will meet API and MIL-Spec standards of SE oil for regular automotive use. Synthetics ARE expensive to purchase initially, so when the contracting officer has a choice between two oils that both meet the specs, he must, by law, buy the one that is cheaper. API SE-rated petroleum oil retails for 75¢ to $1.30 per quart, most synthetics for $3.95 to $4.95 per quart.

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The U.S. Army Mobility Equipment Research and Development Command has done extensive testing on synthetics and found that the majority of them will meet and exceed API SE and MIL Specs and has approved them for use, but, again, they can't be purchased by the Government because of their high initial cost.

Q. Why aren't more private citizens buying and using synthetics?

A. Probably for the same reason they laughed at Orville and Wilbur. People can be slow to accept advances in technology, especially when some of the first synthetics on the market were slipshod formulas pedaled by unscrupulous merchants. Because of those first bad experiences, the public has stayed away from synthetics in droves. Today, however, if you see a synthetic that is API-rated for the job you want it to do, you can be assured that you'll be getting a quality product that will function as advertised.

Q. I know synthetics are expensive to buy, so are they really worth the money?

A. Ah, yes, now that really is the most important question isn't it? OK, let's break it down like this . . . a popular brand of synthetics retails for $4.95 per quart, but is guaranteed to last for 25,000 miles or one year if you change the oil filter at each 12,500 miles and use the synthetic manufacturer's special filter. Cost for this 25,000 miles comes out to $38.75.

Conventional petroleum-based 10W-40 costs about $1.30 per quart and the oil filter is only about $3.00. HOWEVER, to get equal protection, you MUST change the oil and filter according to manufacturer's specs and most of them call for changes at no more than 6,000 miles. So, for 25,000 miles of protection, you must change oil three times, and include the initial fill of oil and a new filter at the same time. Cost? About $38!

So, we see that the costs for synthetics and petroleum oils are ABOUT the same. But there are some other factors you may wish to consider. Most synthetics claim that you will see an increase in your gasoline mileage. If, in fact, these claims are true (and we see no reason why they aren't, given a healthy engine) an average 15% savings in gas will yield a dollar savings of $75.73 if you get 28 mpg and gas costs 65¢ per gallon. If you drive a guzzler that gets only 12 mpg, a 15% savings will work out to $176.61 per year, *all figures being predicated on driving 25,000 miles per year.*

Again, if the theory behind synthetic oil functions is correct, you can save money in other ways. Since synthetics cause rings to seal better, less oil can get up to the combustion chamber and be burned, and then, theoretically, spark plugs will last longer. Since synthetics generally reduce engine operating temperatures from 20- to 50-degrees F, the chances are good that your engine will last longer, thereby saving on the potential cost of repairs.

Remember though . . . all these figures are of no consequence if you begin to use synthetic in your engine when it has 95,000 miles on it, or if it has bad seals, rings, or valve guides. Most engines are designed to operate with some sludge and varnish present, so why buy synthetics when the cheaper conventional oils will function almost as well?

Should YOU use synthetic oils and lubricants in YOUR car? Sure . . . IF you think you'll save money and IF you'll put up with the hassle of not having your brand available at your local gas station, and IF your engine is in good shape, and IF . . .

Aftermarket Oil Additives: This section was originally intended to be a long, technical treatise on the function of aftermarket oil additives normally available to the consumer through retail outlets and parts stores. That's what it was intended to be . . . however, to save some time and avoid misunderstandings, we'll just quote from a report by the U.S. Army Mobility Equipment Research and Development Command. The report is titled "CCL Report No. 3003, Automotive Engine Oil Supplements: Their Characteristics and Effectiveness." It has been approved for public release. This is the way the abstract, or brief summary of the report, reads:

"Crankcase oil additive concentrates, designed for use as an oil supplement oriented towards consumer or aftermarket applications, were investigated in an attempt to define their overall performance effectiveness. Physiochemical data was generated on eighteen oil concentrates to assist in understanding the mechanism of their reported activity. Their effectiveness, relative to dispersancy and detergency, was defined by developed laboratory techniques. The data subsequently generated revealed that many of the oil concentrates offered very marginal improvement in dispersancy and detergency whereas many created potential performance problems as a result of high foaming tendencies and increases in low temperature fluidity properties."

We'll admit this is a pretty cold way to lay it out, but that's the way it goes sometimes. Make your own decision on aftermarket oil additives . . . we know of several pro racers who wouldn't fire up an engine without them. Of course, we also know some people who save $1.98 at every oil change.

Brake horsepower increases when engine is switched from mineral oil to synthetic of same viscosity in test by Smokey Yunick. Test shows results at various rpm settings. Engine used was Chevrolet Z 28 302 cu.-in., run on dynamometer.

RPM	Petroleum Racing Oil	ALL PROOF	Horsepower Increase	% Increase
1800	72.5	80.6	8.1	11.17
2400	108	119	11	10.19
3200	171	189	18	10.53
4000	231	255	24	10.39
4800	276	300	24	8.70
5600	301	321	20	6.64

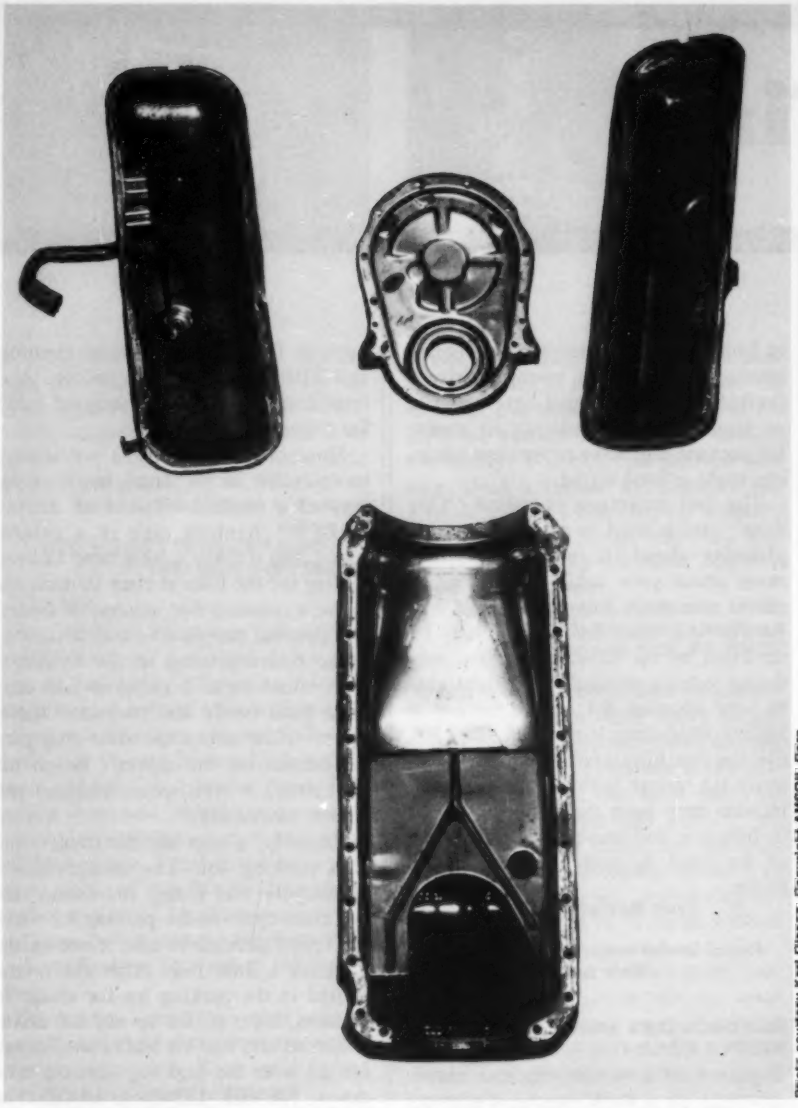
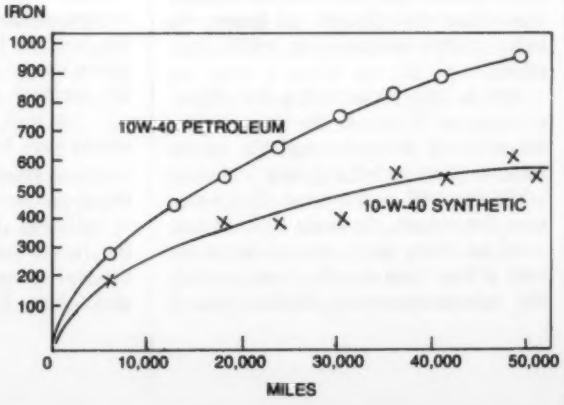


Photo courtesy Karl Olsson, Copyright AMSOIL Corp.

Pan, timing gear cover, and valve covers of synthetic-lubed engine after 70,000 miles. This does not necessarily mean that synthetics are superior, but it does indicate they have exceptional detergent ability.



Engine-oil analysis shows less iron—indicative of engine wear—with Emery diester synthetic oil than with mineral oil. Synthetic was not drained for 50,000 miles. The mineral oil was drained at regular 6000-mile intervals.

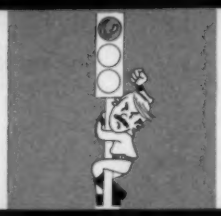
When making the decision about whether or not synthetics are in your best interest economically, consider the ***time*** angle. Most synthetics are guaranteed for 25,000 miles OR ONE YEAR. This means that if you drive only 14,000 miles per year, you must change the synthetic (to remain under the protection of the guarantee) at the year-interval, even though the mileage half of the warranty spec is only about half-gone.

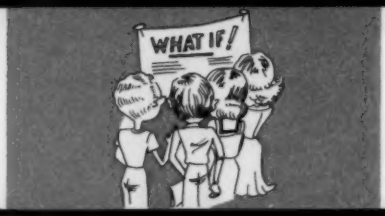
Because of this time factor, you may find that conventional oils, with their 6,000 miles/6 months change specs, may be more economical for you.

Our article about synthetic lubricants first appeared in April '78 and apparently tickled the fancy of a lot of our readers. We have been out of copies for over a year but are still getting requests. So, here it is again.

A question many readers may ask is ". . . but synthetics are so expensive, isn't there some other magic potion that will give me better mileage but not cost an arm and a leg?" The answer to that is . . . yes and no. ARCO's graphite oil will give you improved mileage, as will commercial preparations of $MoDS_2$ (molybdenum disulfide), and certain additives containing teflon. BUT they don't claim to increase mileage as much as the makers of synthetics claim, and they generally don't provide the high-temperature stability and low volatility of the synthetics. If you drive just around town, in moderate temperatures, don't tow a trailer, and drive less than about 12,000 miles a year, then perhaps the graphite oil or other similar product is for you. However, if you subject your engine to heavy loads at high temperatures, do a *lot* of driving in a year, or live where the temperature gets well below zero, you may want to consider using synthetics.

LETTERS to the EDITOR — Backfire





A NEW FACIAL?

Please inform CWO3 R.A. Nashif June '79 "Backfire") that filling a new oil filter with oil may work fine for him, but . . .! There are a whole lot of people out there who, if they tried it, would end up with a face full of oil. It sounds like a good idea, but let's not be having everybody out there trying it. At the least you'll end up with a face full of oil, or you might end up a quart of oil low in the crankcase where you really need it. "Here's OIL in your eye."

SP5 Dennis A. Nimrichter
Ft. Benning, GA 31905

A PUCKER FACTOR

I thoroughly enjoyed your article "A Pucker Factor Higher than Seven" in the May '79 issue. The article was an excellent exercise in planning ahead, which is one of the defensive driving techniques that we advocate. Drivers are encouraged to plan ahead by playing the game "What if . . ." as they drive. Using the road situation that exists at any chosen moment, the driver considers what he would do if a situation developed that would raise his pucker factor. What if – that oncoming car swerves into my lane? What if – my left front tire blows out? What if – my hood flies up? Deciding on possible courses of action when there is no pucker factor makes for quicker and better decisions when there is not much time available.

Another technique is called "What's happening" and involves increasing a driver's awareness of conditions. Examples include looking through the rear window of the car ahead and preparing to slow down if the car in front of the one ahead activates his brake lights. Or looking at the left front wheel of the car opposite you at a stop light to see if it is turned left which may indicate that he is planning to turn left in front of you. We teach hand signals because some of our younger drivers (in this age of turn signal lights) do not recognize a hand signal nor its meaning because they have never seen someone make a hand signal.

The last technique is called "Options" and is used in conjunction with planning ahead. It involves learning more about your vehicle and what it can or cannot do. In your situation #9, the option to head for the ditch may be modified by the capability of the particular vehicle to handle rough terrain. In your situation #4, where the car is stalled straddling a railroad track, if the approaching train is far enough away the driver with a manual transmission may have the option to put it in first gear and move the vehicle clear of the track by activating the starter motor.

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MOTORCYCLES ARE SAFE BUT PEOPLE MAKE THEM DANGEROUS

If you stand a motorcycle in a showroom or on a back porch, it's pretty harmless. But when you add the human element, that sporty piece of equipment can turn into potential catastrophe. People can make them safe by practicing known, simple techniques of maintenance, but only the rider in action can reduce the element of danger by using mature judgment in traffic situations.

People buy motorcycles for different reasons. It may be the price of gas, the thrill of independence, the sporty look, or the wonderful people you meet while engaged in the sport. But whatever the reason, the main tips for survival are being alert, staying out of the way of cars (and the like), and practicing safe maneuvering. Believe me, it pays in the long run. Drive maturely and THINK while you're riding. Also remember to use the "2-second rule" for following distance.

How many times have we seen a motorcyclist in his tennis outfit on his way to a match? What if he doesn't make it? Asphalt rash is a painful thing, and it takes a long time to heal. Falling off the bike at even 10 mph can cause a considerable amount of injury, and hospital people take a dim view of those riders coming in for treatment who could have avoided it had they used their heads and protected themselves. How about the rider that puts his helmet on but doesn't fasten his chin strap, or who wears sneakers and a short sleeve shirt?

Recently, a man and his friend went to a parking lot. The owner of the motorcycle was letting his friend ride his motorcycle in the parking lot when the friend decided to take it out on the road for a little ride. After the owner waited in the parking lot for about 20 minutes, a car pulled up and the driver informed him that his buddy was spread out all over the highway about a mile down. NEVER LEND A BIKE. The guy who borrows a bike does not know the particulars about the machine. He does not know the breaking points and peculiar handling characteristics that are inherent in each motorcycle. He wouldn't know how the clutch feels, or how much pressure it takes to lock the brakes. Had the rider mentioned above known these particular functions, the incident might not have occurred . . . at least his chances for survival would have been better.

An aggressive throttle hand when riding can not only lead to tragedy, but to suffering. Not only the suffering of the individual having the crash, but the suffering to the ones that care about him. Everyone loses out. You,

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as well as your loved ones. Taking these hard facts to heart can only increase your chances for survival.

With sincere hopes of enjoyment of the sport, I ask you all to drive safe and spread the word.

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PLAUDITS

Your DRIVER Magazine just arrived in distribution. I picked it up and glanced through it. After a few minutes of glancing, I noticed a few articles that caught my attention. I especially enjoyed "A Pucker Factor Higher than Seven," May '79. I read it thoroughly and did quite well with the quiz portion, which was very informative yet pleasantly humorous. I feel that I am a safe driver and as of this date have no violations or accidents. I had never read your magazine before today, but from now on I am looking forward to the future issues.

Of course, I read the other articles as well, and they were very well written and informative. Keep up the good work! A new reader for life.

A1C Terrie Arnold, USAF
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One more letter like this and the whole staff asks the Colonel for promotions! Thanks, Terrie.

BATTERY TERMINALS CORROSION

I enjoy your publication immensely; however, an answer you gave in the "Questions, Questions, Questions," section of the Apr '79 issue gave me a start.

The question was, "What's the best way to prevent corrosion on my car's battery terminals?" Your answer, in part, was" . . . coat the terminals (inside and out) with petroleum jelly . . ." I must take exception with that advice. Petroleum jelly does *not* conduct electricity, and putting it on the terminal and inside the clamp will inhibit the transfer of electricity through the battery. You may find yourself with nice, clean terminals and clamps—and a weak battery. I clean my car's battery terminals and clamps monthly and don't put anything on them, and I've never had a problem.

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POTENTIAL MOTORCYCLE TRAUMA

Motorcycle riders have many things to look out for while attempting to keep a "whole skin." There are many irritating factors that one must learn to, as they say, "grin and bear." Although difficult at times, we can cope with most of the obstacles in one way or another. However, something always seems to pop up to create another dilemma.

I recently had a very pleasant conversation with a police officer—*after* the lights on his patrol car had stopped flashing and I was pulled safely off the side of the road. Why was I pulled over? Because I ran a red light—deliberately. That's right! You see, another dilemma had presented itself to me.

I stopped at this particular red light (on my motorcycle), waiting to make a left turn. I sat through three light changes and waited, but nobody else was going my way and my turn never came. My motorcycle would not trip the light. I could see two alternatives—either wait for a car going my way (which could be an indefinite period) or run the light. I chose the latter. I thought I had already waited a reasonable length of time, so I watched the traffic until there was enough space between the cars and off I went. I didn't get far, however, until I saw those flashing lights in my mirror.

It was no surprise to me at all. I had done this before and was expecting to get caught. I explained the problem to the police officer and, as I said, we had a very pleasant conversation. He was extremely nice about the whole affair and was sympathetic about the situation. He checked my credentials and told me that such actions were dangerous, warning me to be *very* careful. No ticket!

I fully agree that this dilemma creates a very hazardous situation. I also realize that the next police officer may not be so nice about it. I don't enjoy these situations, but see no other way out at times. I try to wait for a car to trip the light when possible, but there are limitations as to how long one can wait. When you must be at a designated place at a given time, it causes problems.

I have learned that there are numerous traffic lights in the local area that will not trip for a motorcycle. State and local authorities are aware of the problem, and many lights are already scheduled for action to correct this difficulty. I hope they will all be corrected soon for my own safety as well as everyone else's.

I do not encourage anyone to do what I did—it could prove disastrous. If possible, wait for a car to trip the light. Also, if you know the locations of such a light, try to avoid it by taking an alternate route. When you are in an unfamiliar area and find yourself facing one of these lights—good luck. Make your own decision according to the factors involved in your particular case. If, however, you choose to run the light as I did, watch for those flashing lights in your mirror and be prepared to answer for your action.

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passenger safety

Little passengers aren't the only ones who get in trouble entering or leaving cars on the traffic side. Adults do it every day. How about you? Do you check traffic carefully before opening the door to exit on the driver's side? Do you enter and exit on the curb side whenever possible?

Trying to get Robin and Misty safely into the back seat is their mother, SSgt Dawn V. Perry.